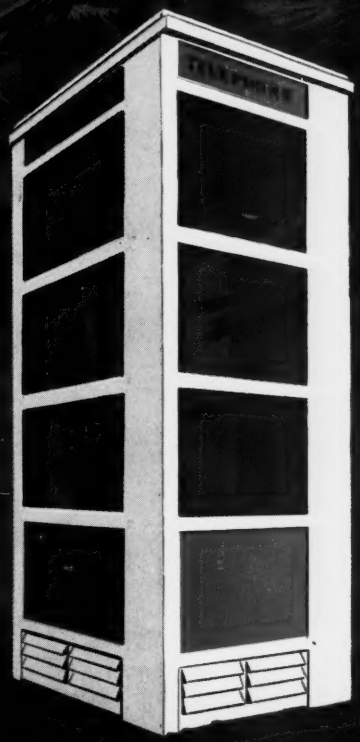
Public Utilities

Fortnightly



78

WHAT'S AHEAD FOR THE TELEPHONE INDUSTRY?

— Expansion — Financing — Regulation —

OCTOBER 11, 1956



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Public Utilities
FORTNIGHTLY

VOLUME 58 OCTOBER 11, 1956 NUMBER 8

ARTICLES

The Telephone Industry under Regulation ..... *Hon. George C. McConnaughey* 561
FCC's common carrier division has regulatory jurisdiction over telephone and telegraph companies, large and small.

THE USITA—Knight Errant of the Independents ..... *Merle M. Hale* 565
The national independent telephone association, some sixty years old, is in its prime of life, aiding the small independent companies to adapt themselves.

Planning for Modern Independent Telephone Service ..... *Donald C. Power* 570
Population and industry are, and over the past decade have been, highly fluid. This has caused special problems for telephone companies.

Merchandising—New Look at an Old Picture ..... *James W. Cook* 581
Demand on the part of the consumer is not the sole point of stimulus for new styles in such common items of daily use as the telephone.

Problems of the Small Telephone Company ..... *William C. Henry* 589
In this period of economic realities the old problem of economics has a way of playing hob with that typical American entity, the small, independent enterprise.

The Rural Telephone Loan Program ..... *An REA staff article* 594
An up-to-date survey of the successes and accomplishments of the rural telephone loan program of the Rural Electrification Administration.

FEATURE SECTIONS

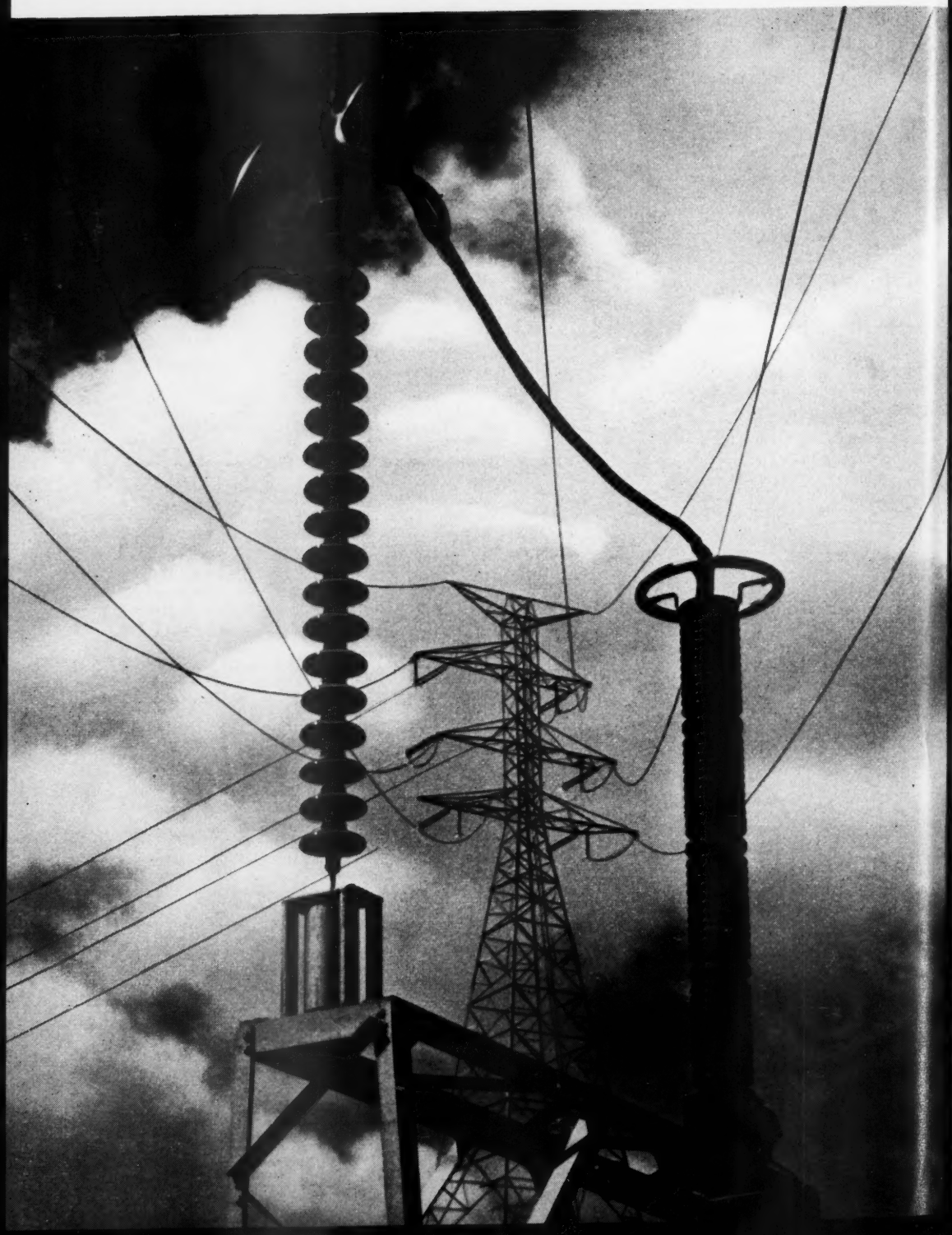
Washington and the Utilities 603
Telephone and Telegraph 606
Financial News and Comment ..... *Owen Ely* 609
What Others Think 618
Communications for Modern Crime Control 618
New Outlook for Telephone Communications 624
An Analysis of Electric Rate Structures 627
State Regulation and Atomic Energy 628
The March of Events 629
Progress of Regulation 633

- *Pages with the Editors* . 6
- *Utilities Almanack* 33
- *Industrial Progress* ... 37
- *Remarkable Remarks* . 12
- *Frontispiece* 34
- *Index to Advertisers* . 62

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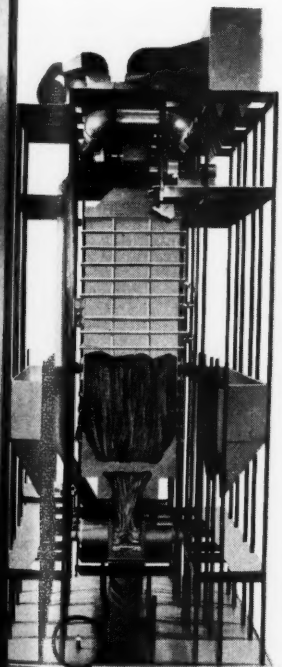
sProduction of Energy

"AMERICAN GAS AND ELECTRIC SYSTEM looks for a higher level of efficiency in the production of electric power than has ever been achieved before."

This firm prediction by Philip Sporn, president of the American Gas and Electric System, refers to the two largest steam-electric generating units in the world, which are to be added to the facilities of AGE.

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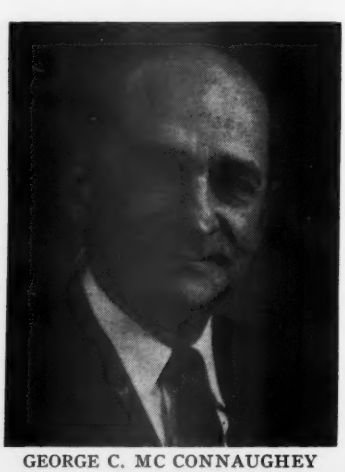
Pages with the Editors

FOR a number of years PUBLIC UTILITIES FORTNIGHTLY has paid its respects to various utility industries and groups interested in public utility regulation by the publication of special issues designed so as to be of particular interest to such utility industries and groups. Coming out contemporaneously with annual national conventions, there have been special electric utility issues, special gas utility issues, special transit issues, and special issues dealing with the work of the annual conventions of the National Association of Railroad and Utilities Commissioners and of the Public Utility Law Section of the American Bar Association.



DONALD C. POWER

IN this issue for the first time we are presenting a special number devoted to the telephone industry. Since the Bell system does not have its own national convention, we have timed this particular issue to coincide with the national convention of the great independent branch of the telephone industry—the United States Independent Telephone Association, meeting at The Conrad Hilton hotel in Chicago, October 15th to 17th. We salute the independents and trust that the delegates, guests, and friends attending the Chicago meeting will find the excellent program which has been arranged for them (see page 588 for timetable) of value and profit.



GEORGE C. MC CONNAUGHEY

CHAIRMAN GEORGE C. MCCONNAUGHEY, whose article on FCC regulation of telephone companies leads off, is hardly a stranger to our readers in view of his long and distinguished career in utility regulation. Born in Hillsboro, Ohio, in 1896, the son of a country doctor, he attended Denison University and saw service during World War I as an Army Lieutenant of field artillery with the AEF. Following his graduation from Denison (PhB, '20), he studied law and graduated from Western Reserve University (LLB, '23). After previous law practice in Cleveland, he was appointed chairman of the Ohio Public Utilities Commission (1939-45). He served as president of the National Association of Railroad and Utilities Commissioners in 1944 and was appointed by President Eisenhower as a member of the Renegotiation Board in 1953. He was named to the FCC in 1954.

* * * *

THE article beginning on page 565 dealing with the work of the USITA is by the retiring president of that association, MERLE M. HALE, who is also president of the Lincoln (Nebraska) Telephone &

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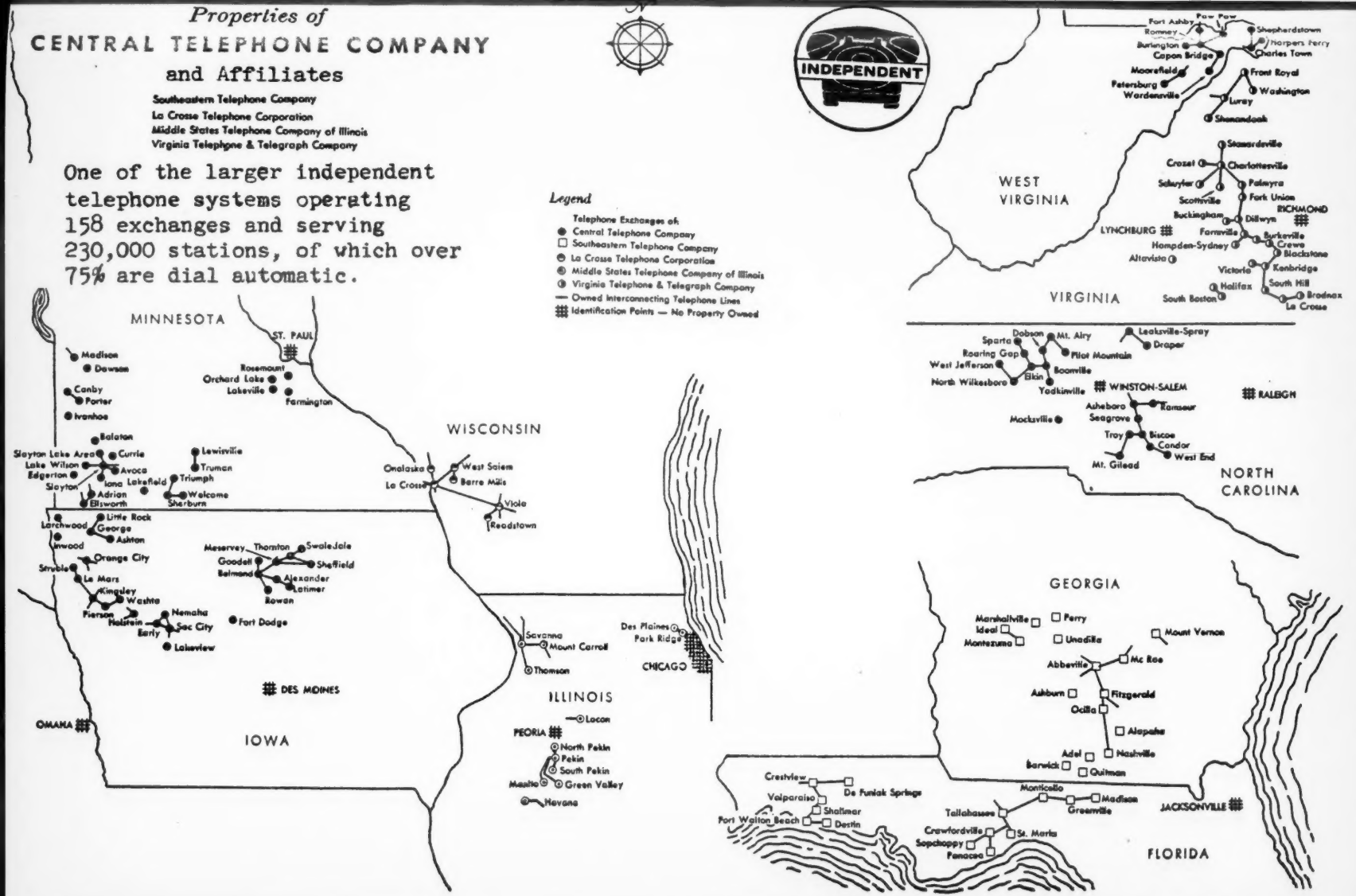
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Telegraph Company. A native of Lincoln, HALE started his career with the company he now heads as a ground man. He took enough time out to complete his education at the University of Nebraska (BS, '25), then returned to the company's commercial department. He was made president of the company in 1952.

* * * *

DONALD C. POWER, whose article on modern independent telephone company organization begins on page 570, will probably be the new president of the USITA by the time this issue gets into general circulation. He is also president of the largest independent telephone group in the United States, the General Telephone Corporation. Born on Christmas day in Paine Station, Ohio, POWER attended Denison University and then the Ohio State University, from which he graduated with three degrees: BS, '22; LLB, '26; MA, '27, and served as an associate professor of economics. POWER was made assistant attorney general and attorney for the Ohio Public Utilities Commission in 1933. From 1939 to 1943, he was secretary to the governor of Ohio. In 1951, after serving as legal counsel in charge of various system telephone rate cases, POWER was elected to be the third president of General Telephone Corporation. He is also, at this time, chairman of the Section of Public Utility Law of the American Bar Association.

* * * *

REPRESENTING the Bell system in this special telephone issue is JAMES W. COOK, AT&T vice president in charge of merchandising, whose article on that subject begins on page 581. Born in Newcastle on Tyne, England, he was educated at Phillips Exeter Academy and Yale University (AB, '29) and started his telephone career with the New Jersey Bell Telephone Company (1929-41), in which he rose to the position of traffic supervisor. He subsequently served as a traffic engineering official with the American Telephone and Telegraph Company (1941-44), and Pacific Telephone & Telegraph Company (1944-47). He was made vice president of the Northwestern Bell Telephone Company in 1947 and vice president of the American Telephone and Telegraph Company in 1954.



JAMES W. COOK

* * * *

THE article on "Problems of the Small Telephone Company," beginning on page 589, comes to us from a former president of the USITA, who has continued to serve as chairman of that association's small company committee. He is WILLIAM C. HENRY, president of the Northern Ohio Telephone Company, of Bellevue, Ohio, more affectionately known to his many friends in the industry as "CAP" HENRY (an anachronism in itself because he rose to the rank of Colonel in the Signal Corps in World War II). A native of Indiana, he interrupted his Wabash College classes to become a Canadian flyer with the Royal Air Force in World War I. He later graduated from the University of Illinois (AB, '22) and started in business with the Goodyear Tire & Rubber Company, switching to an auto accessory company in Bellevue, Ohio. While in that city he joined the local telephone company as a directory advertising sales manager and rose through successive promotions to the presidency of the greatly consolidated company he now heads, which operates 66 exchanges and more than 96,500 telephones in north-central Ohio.

THE next number of this magazine will be out October 25th.

The Editors



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(October 25, 1956, issue)

★

AN INDUSTRY WITH A FUTURE

The gas industry claims to have the finest fuel in the world to deliver to the great markets of the nation—markets which are increasing constantly. This puts heavier burdens of responsibility on the gas industry. Dean H. Mitchell, president of the American Gas Association, as well as president of the Northern Indiana Public Service Company, has written a thoughtful account of the way in which the gas industry can acquit itself of its public service responsibility and realize the full potential of thrilling future prospects.

DOES ECONOMIC CLIMATE AFFECT JUDICIAL EXPERTISE?

There have been definite cycles within the relative brief history of utility regulation in the United States, during which all three constitutional branches of government have endeavored, in turn, to play dominant parts. The period of statutory rate making, the period of strict judicial supervision, and the more recent period of presumption favoring independent commission "expertise" have all been witnessed. Commissioner William R. Connole of the Federal Power Commission has undertaken to analyze this intriguing progression and changing of emphasis in terms of economic variations.

FOR YOUR INFORMATION

Does the management of a modern gas utility serving a large American metropolis need a philosophy with respect to human relationship? If so, what should that philosophy be? James F. Oates, Jr., chairman of the board of The Peoples Gas Light and Coke Company, has written a practical analysis of methods which can be used and steps which can be taken to place the public utility companies' relationship with its employees and customers on a friendly and cordial basis of understanding and mutual respect.

SOME COMMENTS ON GAS SUPPLY

What steps should be taken to insure the maximum supply of gas at the lowest cost to the consumers consonant with fair and equitable treatment for producers, pipeliners, and distributors? Tom P. Walker, president, Transcontinental Gas Pipe Line Corporation, veteran utility executive, drawing on a rich background of managerial experience, makes some practical suggestions for erasing trouble spots now bothering those charged with the responsibility of gas supply.

GAS AIR CONDITIONING, TODAY AND TOMORROW

The air-conditioning load is a sought-after load for the gas industry as the seasonal balance for its winter heating load. Conversely, electric utilities, which are developing considerable air-conditioning summer load, are turning towards heating uses for seasonal balance. Here is an estimate by George S. Jones, Jr., managing director, Air Conditioning and Refrigeration Institute, of future prospects from the standpoint of a gas appliance expert, with due regard for the underlying economics.

IMPACT OF COST ALLOCATION ON GAS PRICING

Henry Herz, president, Research Services, Inc., Hoboken, New Jersey, has reviewed foreign as well as American industrial literature and regulatory precedent to determine the scope of consideration which might be desirable with respect to cost allocation in pricing gas service. He finds some surprising gaps and deficiencies, but also makes practical suggestions for a new evaluation and reformation of gas pricing practices from the standpoint of sound economics.

★

Also . . . ***Special financial news, digests, and interpretations of court and commission decisions, general news happenings, reviews, Washington gossip, and other features of interest to public utility regulators, companies, executives, financial experts, employees, investors, and others.***



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M. S. RUKEYSER
Columnist.

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STANLEY D. FORSYTHE
Superintendent of engineering, Chicago Transit Authority.

"It is not too radical to say that any large city can have just as fine a rapid transit system as its citizens want. Chicago planners are awake to this possibility and another decade will see tremendous changes and enlargement of the existing rapid transit system. The incorporation of rapid transit into highway plans offers an unparalleled opportunity and is being given active consideration for expressways being planned in Chicago."

KEITH S. MCHUGH
President, New York Telephone Company.

"People have widely varying views of engineering and of an engineer's duties. I like to think of engineering as the art of science of turning the physical things and the sources of power which the good God has given us into something useful for society. I don't suppose that is an original definition but it is my own. . . . I think we also should be humble in our profession, because even with the greatest of ability in our own fields we could not get very far without the help and co-operation of others in other fields."

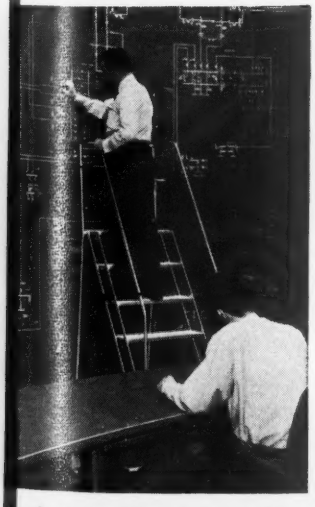
MARK W. CRESAP, JR.
Executive vice president, Westinghouse Electric Corporation.

"Just as charity begins at home, any constructive effort to improve intercommunication generally depends on the success of efforts within individual companies—between individual managements and the unions with which they deal. . . . (However), communications between managers and labor leaders is no substitute for direct and regular intercommunication between managements and employees . . . even if good employee relations are sustained by effective communications, the need for good relations with union leaders still exists."



This new Systems Operations Center of the Jersey Central Power & Light Company keeps in touch with remote stations through Bell System channels for telemetering and remote control.

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ored pegs in wall diagram indicate nents of line to be isolated for main- nce work.

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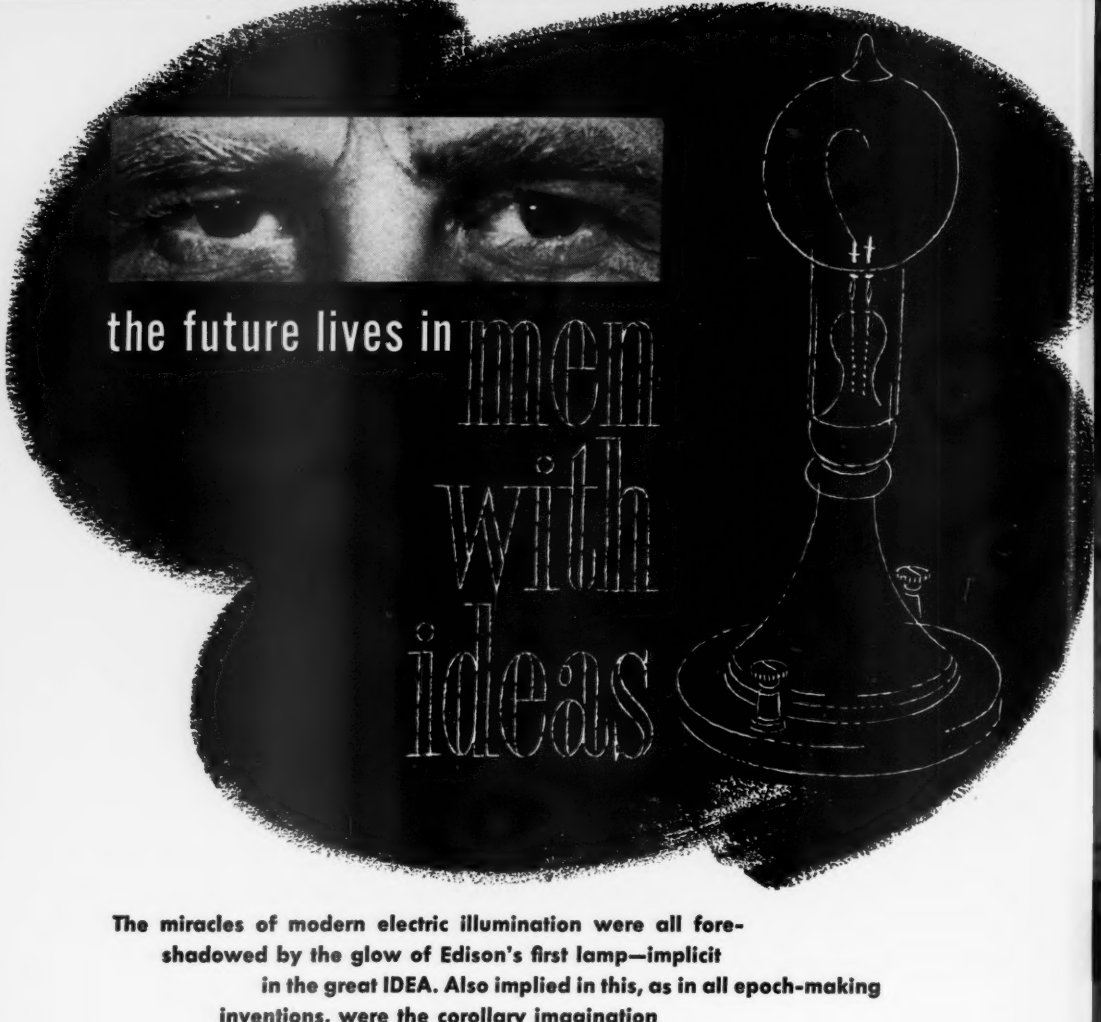
An engineer glances at the dials, which give him a running picture of the system and the changing demands he has to meet—information which has been brought to him by Bell System telemetering channels.

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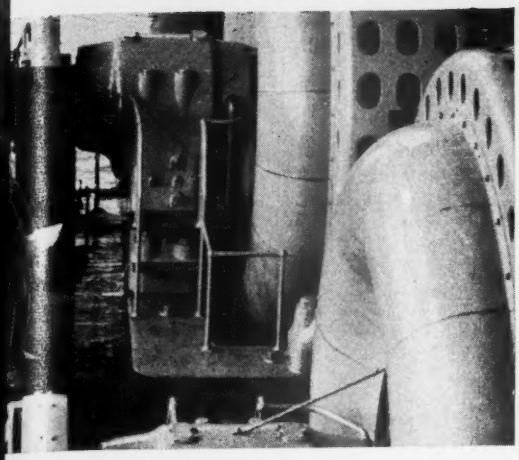
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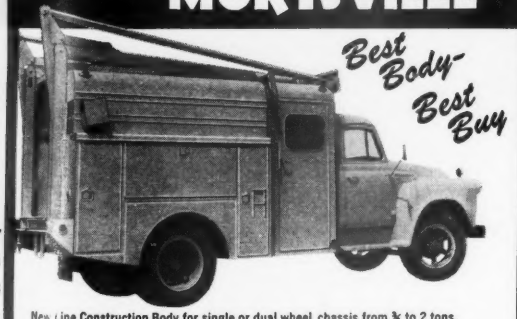


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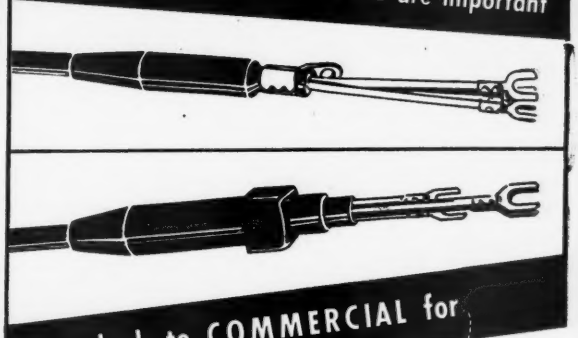
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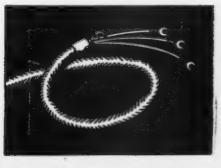
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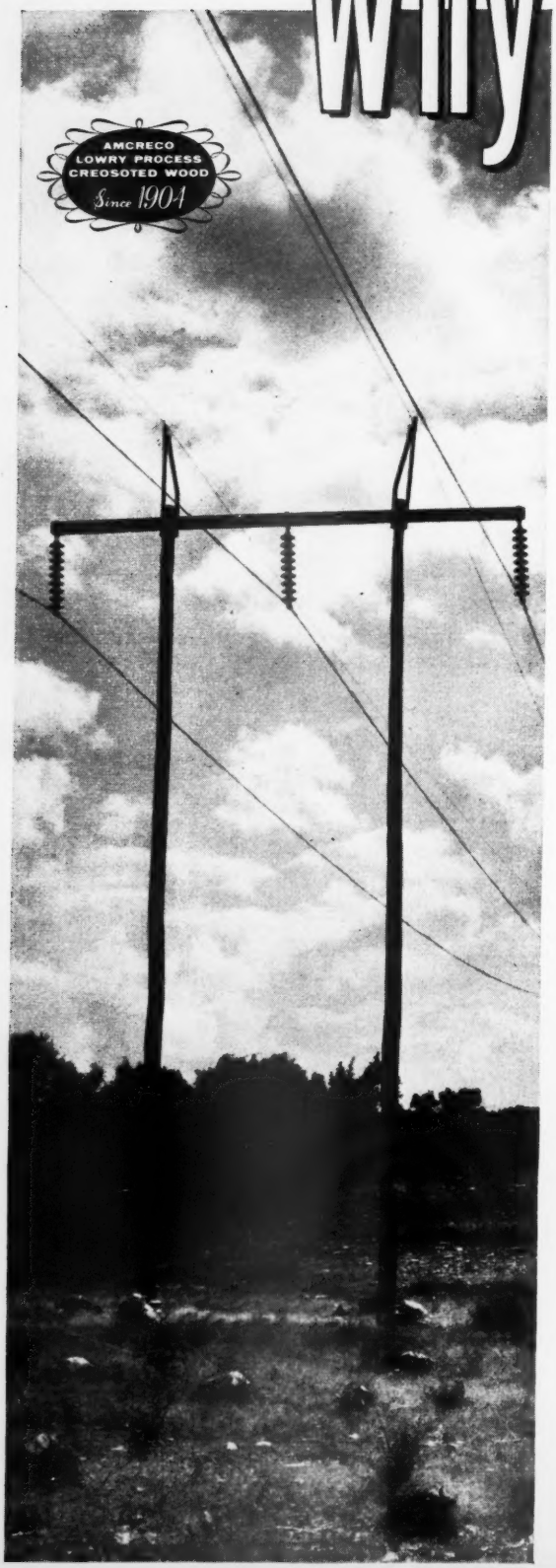
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This machinist is "miking" a disc for one of the largest butterfly valves ever built — 192" diameter. Newport News built 3 such valves, each weighing 446,000 lbs., for the Ross Power Plant, Skagit Project, Department of Light, City of Seattle, Washington. Designed for a water flow of 3,620 cu. ft. per sec., and a hydrostatic pressure of 290 psi., these valves were shop tested by Newport News at 450 psi. They are hydraulically operated with oil at 1,500 psi. pressure.

Birth of a **200-ton** Butterfl

This disc for a 16-foot butterfly valve reflects two basic advantages of Newport News fabrication...

First, it exemplifies the *careful attention* Newport News craftsmen give to every detail. And secondly, it attests to the *quality* with which Newport News produces in massive equipment for public utilities and allied industries... due to Newport News' high integration of skill and production facilities.

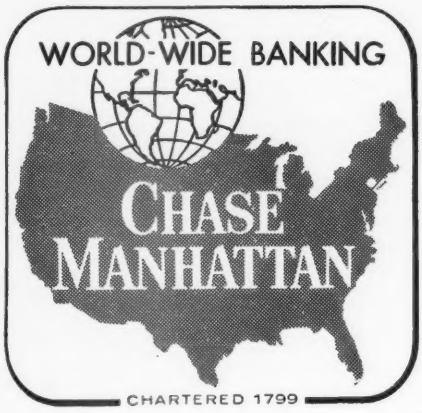
Additional advantages accrue to customers from extensive work conducted in Newport News' testing laboratories on problems related to water power equipment.

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In this, and in its other banking services, Chase Manhattan is continuing to serve the vital and growing telephone industry.

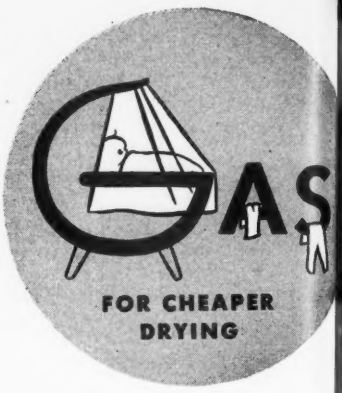
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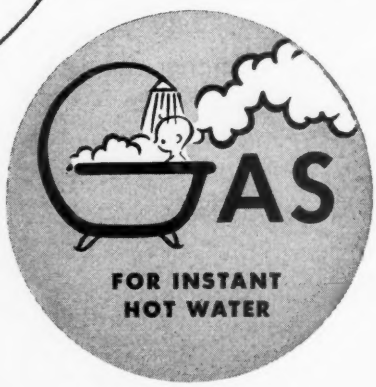
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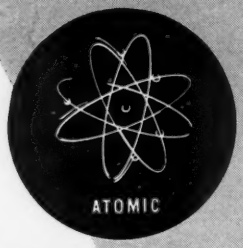
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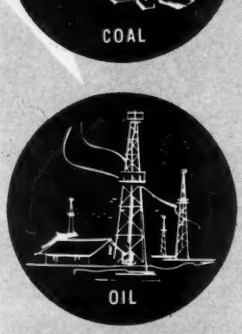
electric power

WHATEVER THE SOURCE

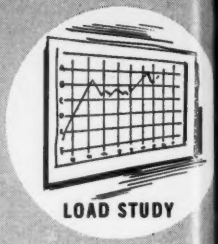








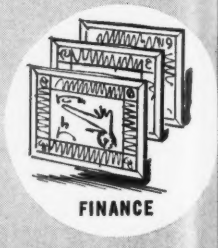












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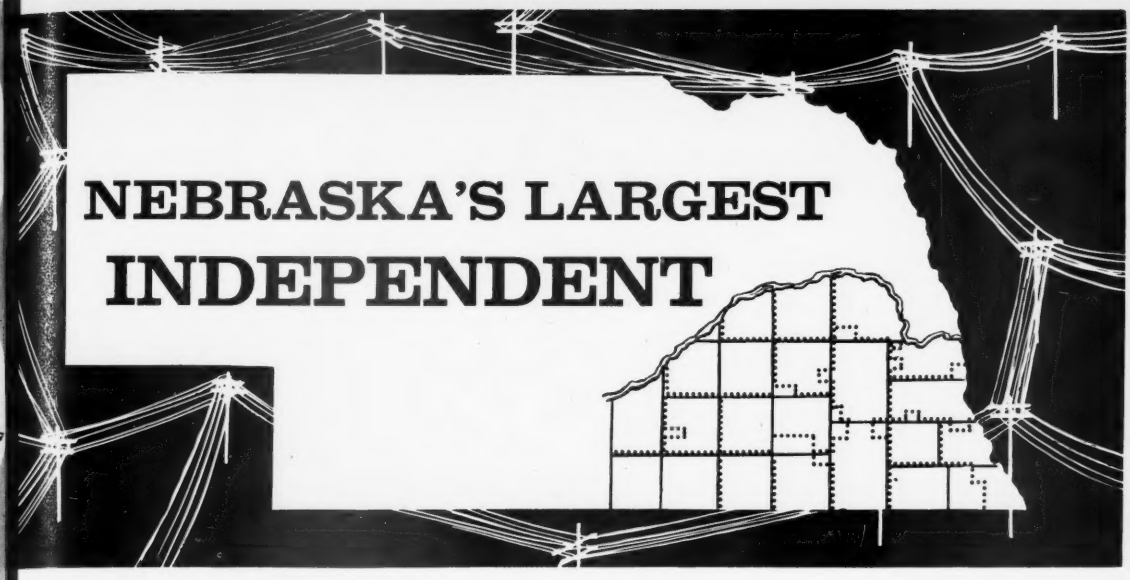
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One-fourth of Nebraska's half million telephones are served by LT&T, the state's largest independent telephone company. The company operates 124 exchanges in 22 counties of the state, an area rich in agricultural production and attractive to industrial growth.

Southeast Nebraska enjoys many business advantages . . . an abundance of underground water, a dependable labor supply, excellent transportation facilities, central location and adequate power. An atomic power plant under development near Lincoln will augment the power supply.

To meet increasing demands for telephone service, LT&T has doubled its investment in the past ten years. A $37 million company, it now operates 126,000 telephones, 80% of which are dial. All exchanges have direct connection with the national operator toll dialing network and the first installation of customer direct distance dialing is in process.

Now in its second 50 years, the company has direct connection with the transcontinental radio-relay system and the transcontinental underground toll cable. It is equipped to provide modern telephone communication to meet any customer need.

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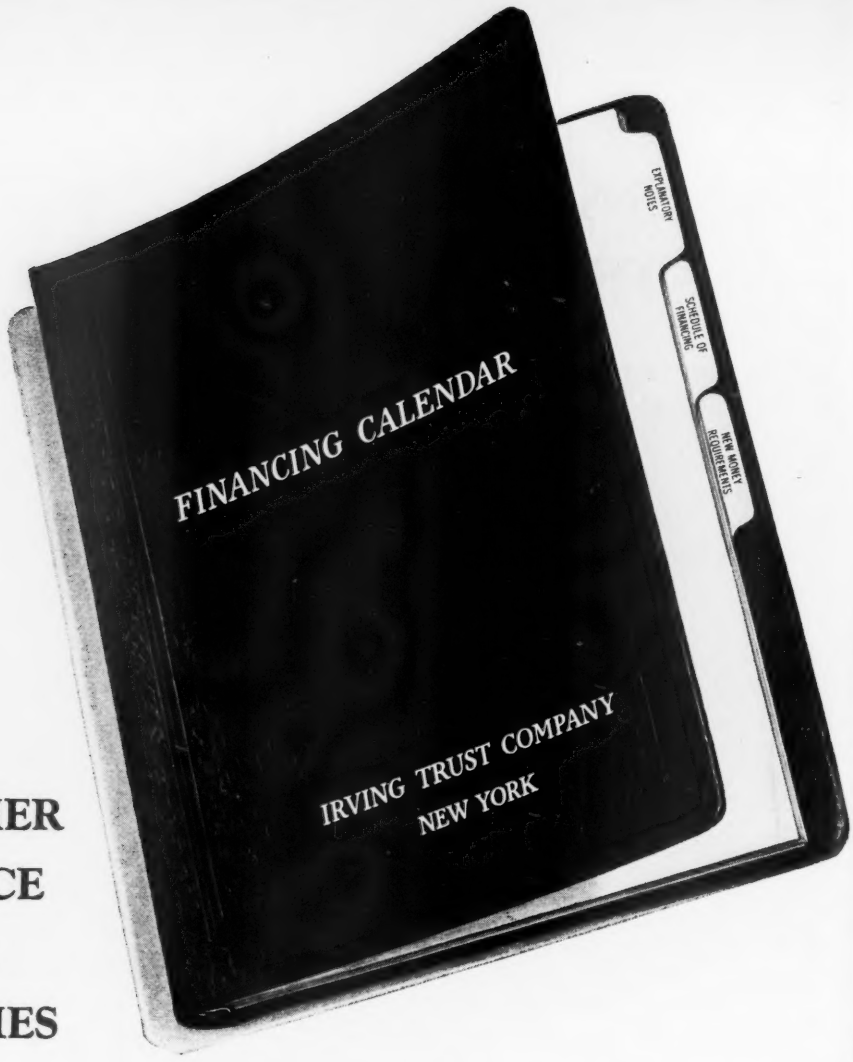


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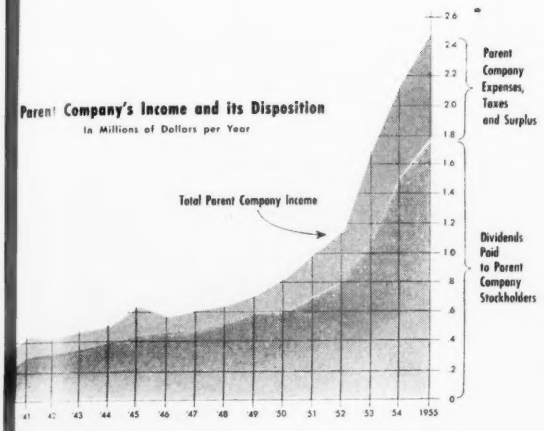
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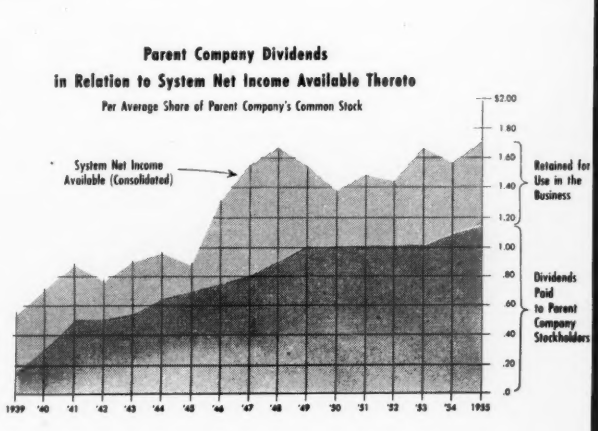
UNITED UTILITIES, INCORPORATED

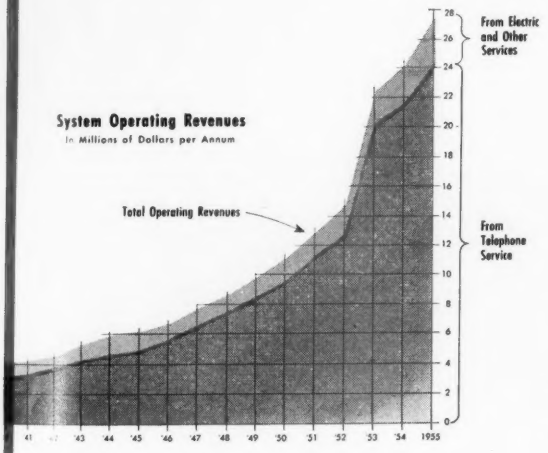
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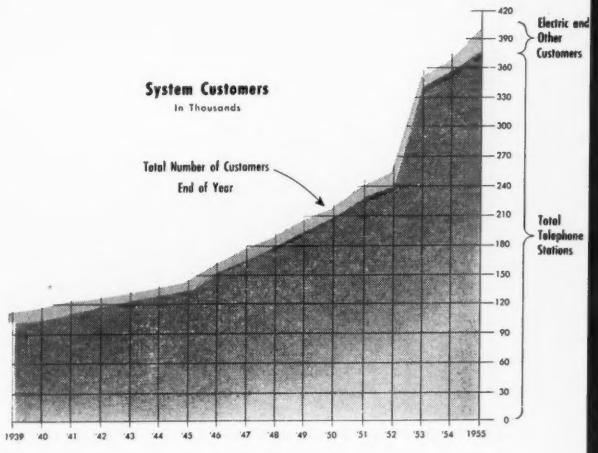
KANSAS CITY 11, MISSOURI

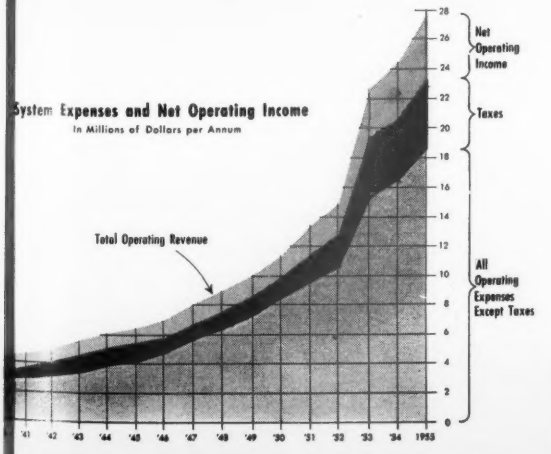
GRAPHIC PORTRAYAL OF GROWTH OF UNITED UTILITIES SYSTEM

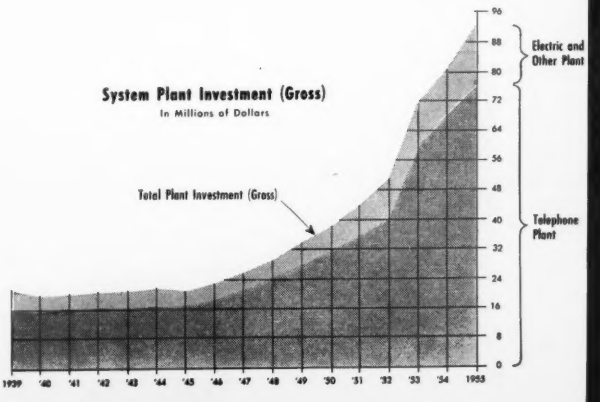












Above information taken from 1955 annual report. Copy available upon request.



John Harrell, Manager Voltage Regulator Sales, points o
that URL-16 feeder regulator with new CVR relay
instant-response Geneva gear tap changer combine to o
superior regulation with less maintenance.

Westinghouse 16-step regulation mean you carry greatest load, produce most revenue

URL-16 with new CVR relay performs three exclusive functions:

1. FASTER CORRECTION OUTSIDE SET BANDWIDTH

The new CVR relay designed with inverse time characteristics actually evaluates the need for speed of response . . . steep voltage variations are corrected more quickly than gradual voltage changes. Result —a narrower effective bandwidth.

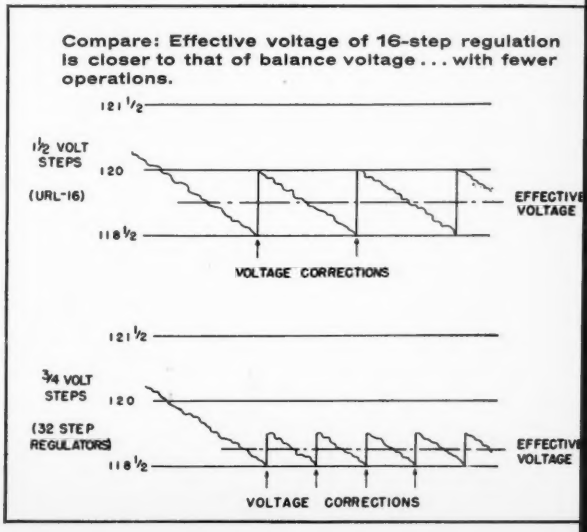
2. INSTANT-RESPONSE TAP CHANGING

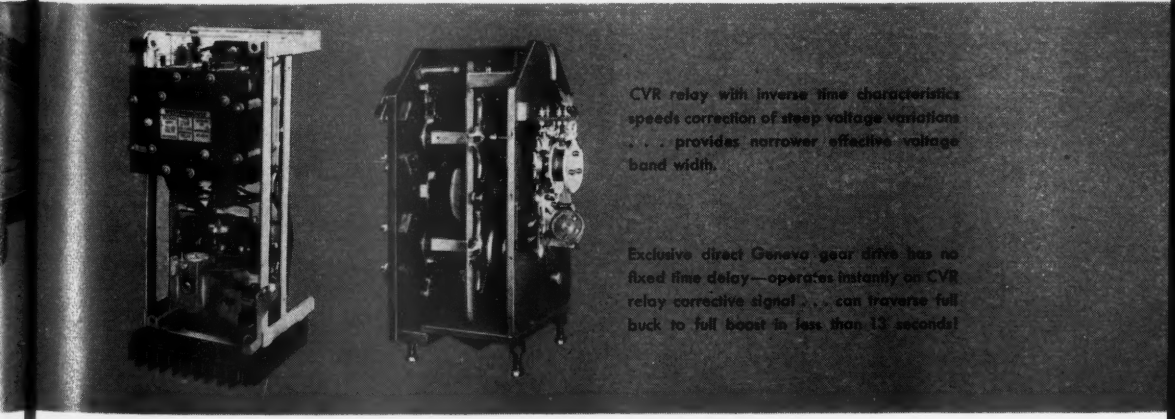
Because of direct Geneva gear drive there is no fixed time delay between relay and tap-changer operation. Tap changer operates instantly . . . can traverse full buck to full boost in less than 13 seconds!

3. 16-STEP REGULATION

The exclusive URL-16 with 1½-volt steps corrects exactly to balance voltage on a 3-volt bandwidth bringing the effective voltage nearer to this level. Similarly, the higher correction on 2-volt or greater bandwidth results in effective voltage closer to the desired level. URL-16 slashes number of corrective operations by 42%, contacts erosion 15%. Result—substantial savings in maintenance.

A narrower effective bandwidth means you can put more load on your system . . . get more revenue for power delivered. Specify new Westinghouse URL-16 regulators on your system. J-70779





CVR relay with inverse time characteristics speeds correction of steep voltage variations . . . provides narrower effective voltage band width.

Exclusive direct Geneva gear drive has no fixed time delay—operates instantly on CVR relay corrective signal . . . can traverse full buck to full boost in less than 13 seconds!

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General Accounting



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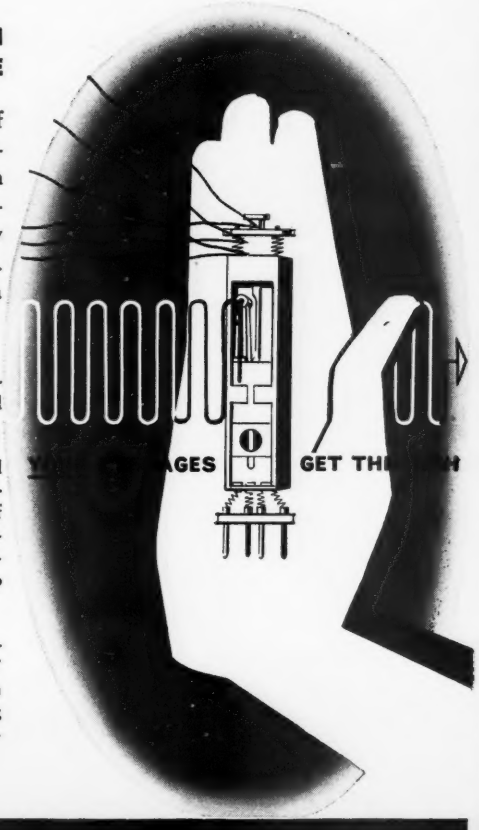
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a new dimension in two-way radio communications—the result of of extensive engineering and "on-the-job" field testing. PRIVATE- radiophone incorporates an entirely new circuitry concept which ides privacy from interfering signals and unwanted co-channel mes- . Now you can "get off the party line." No longer is it necessary ten to a constant stream of "channel chatter" over the loudspeaker. VATE-LINE radiophone is *completely quiet* except when receiving a from another PRIVATE-LINE radiophone in the same operation.

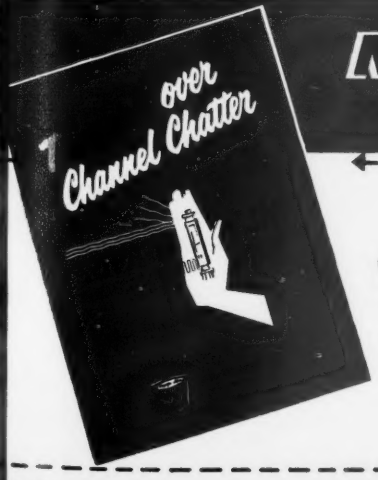


DUCES MISSED AND MISUNDER-OOD MESSAGES—operators hear ly messages within their own eration—minimizes confusion, in- tention.

CREASES OVERALL EFFICIENCY—wer errors mean more produc- ve utilization of time—fewer re- at messages—more dispatched hicles per hour...real advantages ring peak load periods.

CREASES AREA COVERAGE—oded squelch" circuit automati- lly maintains optimum receiver nsitivity, assuring maximum com- unications range at all times—prevents desensitization of the receiver by accidental or intentional misadjustment.

- **EASIER TO OPERATE**—no additional buttons, lights, adjustments or operational techniques—elimination of squelch adjustments makes PRIVATE-LINE even simpler to operate than conventional two-way radio equipment.
- **REDUCES OPERATOR FATIGUE**—elimination of "channel chatter" enables operator to concentrate on his job—reduces tension, providing a more pleasant atmosphere—increases job satisfaction.



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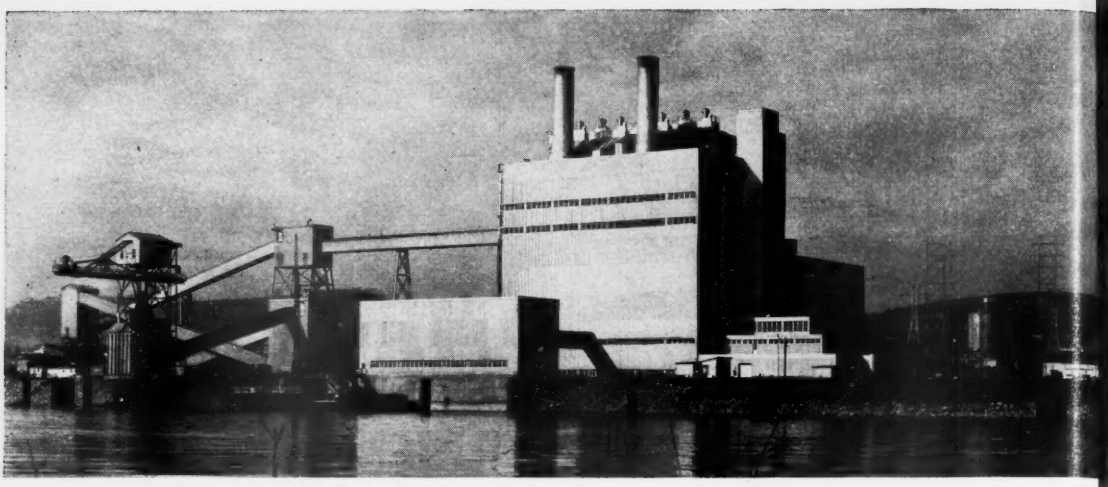
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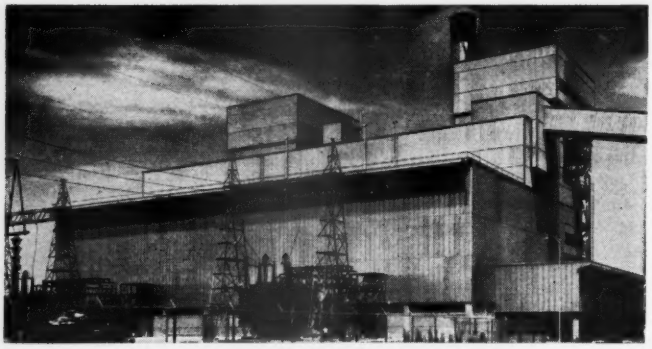
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only complete radio communication service—by the outstanding leaders of the industry

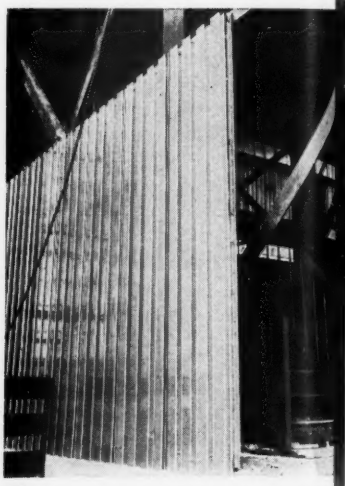


Why fine new power plants everywhere have Q-Panel Walls

Builders of new power plants in all parts of the country have specified Q-Panel walls for the following very good reasons: 1. Q-Panels are permanent, dry and noncombustible, yet may be demounted and re-erected elsewhere to keep pace with expansion programs. 2. Q-Panels are light in weight, thus reducing the cost of framing and foundations. 3. Q-Panels have high insulation value . . . superior to a 12″ masonry wall. 4. Q-Panels are quickly installed because they are hung, not piled up. An acre of wall has been hung in 3 days. For more good reasons for using Q-Panel construction, use the coupon below and write for literature.



Q-Panel walls grace the new Elrama Plant (above) near Pittsburgh. It was de by Duquesne Light Company's Engin and Construction Department. The Corporation was General Contractor.



Q-Panel walls (above) go up quickly any weather because they are dry a hung in place, not piled up.

More than 32,000 sq. ft. of Q-Panels were to enclose the impressive Hawthorn Electric Station (left) of the Kansas City souri, Power and Light Company. Ebasc vices, Inc., designed and built the plant.

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OCTOBER

Thursday—11 *Southeastern Electric Exchange ends 2-day accounting meeting, Miami, Fla.*	**Friday—12** *National Metal Exposition ends, Cleveland, Ohio.*	**Saturday—13** *Virginia-West Virginia Independent Telephone Associations will hold joint convention, Roanoke, Va. Nov. 1, 2.* ***Advance notice.***	**Sunday—14** *American Water Works Association, Southwest Section, begins meeting, Little Rock, Ark.*
Monday—15 *American Gas Association begins annual convention, Atlantic City, N. J.*	**Tuesday—16** *Inter-Industry Farm Electric Utilization Council ends 2-day national power use workshop, Milwaukee, Wis.*	**Wednesday—17** *United States Independent Telephone Association ends 3-day annual convention, Chicago, Ill.*	**Thursday—18** *Edison Electric Institute, Transmission and Distribution Committee, begins meeting, Buffalo, N. Y.*
Friday—19 *Wisconsin Utilities Association ends 3-day convention, Milwaukee, Wis.*	**Saturday—20** *South Carolina Independent Telephone Association will hold convention, Clemson, S. C. Nov. 5, 6.* ***Advance notice.***	**Sunday—21** *American Water Works Association, Alabama-Mississippi Section, begins meeting, Mobile, Ala.*	**Monday—22** *National Safety Council begins meeting, Chicago, Ill.*
Tuesday—23 *American Water Works Association, California Section, begins meeting, San Diego, Cal.*	**Wednesday—24** *American Institute of Electrical Engineers ends 3-day electrification of machine tools conference, Cincinnati, Ohio.*	**Thursday—25** *Northwest Public Power Association, Power Use Section, begins meeting, Pasco, Wash.*	**Friday—26** *Oklahoma Independent Telephone Association will hold convention, Oklahoma City, Okla. Nov. 7, 8.* ***Advance notice.***



Courtesy, The Pacific Telephone and Telegraph Company

The Palouse Wheat Country

A long-distance telephone line route near Steptoe Butte, Washington.

Public Utilities
FORTNIGHTLY

VOL. 58, NO. 8 OCTOBER 11, 1956

The Telephone Industry under Regulation

FCC's common carrier division has regulatory jurisdiction over telephone and telegraph companies, large and small, throughout the country and U. S. possessions. The over-all picture is one that supports the soundness and effectiveness of regulation today.

BY THE HONORABLE GEORGE C. McCONNAUGHEY*
CHAIRMAN, FEDERAL COMMUNICATIONS COMMISSION

FROM the vantage position of a public utility "regulator," as former chairman of the public utilities commission of Ohio, and more recently and currently as chairman of the Federal Communications Commission, I have seen the telephone industry and the regulatory processes together pass, with progress and achievement, through succeeding periods of technological economic change. From this enriching experience, I have become firmly convinced as to the soundness and effectiveness of our regulatory system. Basic concepts and principles have stood well the strain of change in times and I believe they will be appropriate for the future. With that premise, let us make a brief examination and appraisal of the status of the telephone industry under regulation.

For perspective, consider the dimensions of the telephone industry serving the

*For additional personal note, see "Pages with the Editors."

communication needs of the American people today.

It is an industry comprised of approximately 4,800 operating companies with more than $18 billion invested in plant. There are in excess of 58,000,000 telephones in service, each interconnected with the others through some 21,000,000 central offices and countless miles of wire and radio communication channels. It is an industry with annual gross operating revenues of over $6 billion and with over three-quarters of a million employees. Its largest corporate component, the American Telephone and Telegraph Company, has about 1,500,000 stockholders, identified with all strata of our society.

It is a vast industry, serving local, state, national, and international areas and spheres of social and economic life. It penetrates to the isolated rural community, and expands to meet the service requirements of individuals, industry, business, and government throughout the land. With the aid of systems in other countries, it extends to practically every inhabited area on the face of the earth.

In quantity and quality of facilities and service it constantly strives to approach the goal of adequacy. Virtually everywhere its facilities are ready for use whether the need is for social or business voice communication between individuals, the intricate transmission of television programs, other specialized needs, or the national defense. Its services are tailored to meet the varied needs of all types of users. By way of example, consider the important part played by the telephone industry in getting television programs to the public. The television networks serving the political conventions this summer were part of the largest communications hookup in history. Nearly 73,000 miles of channels, almost all equipped to carry color programs, linked 400 TV stations in 270 cities. Contrast this with the first conventions covered on a regular network basis in 1948. Then 1,529 channel miles served 16 TV stations in 7 cities.

Excellent though our telephone system is, we regulators are not satisfied; we can never be. We share the industry's desire for greater achievement. The past has provided a strong present foundation upon which to build; its achievements give us confidence and guidance for the future. It is our duty and responsibility to encourage and foster continued progress, to the end that all the people of the United States, at all times, shall have nothing less than the most rapid, efficient, local, nation-wide, and world-wide telephone communication service.

The telephone industry is doing more than just growing. It is changing in many respects. Every vital industry stays vital by changing with the times. Change began in the telephone industry right at the beginning. Before the first working model of the telephone was completed, its inventors were figuring out how to improve it in order to meet consumer acceptance. Now this process of change seems to be speeding up. Today the world is on the threshold of a new era of application of electronic invention and innovations to all industry.

The beginning of use of electronic equipment in this industry was in 1915 with application of vacuum tube repeaters. This was followed in 1918 by carrier systems. Electronic equipment and associated land, buildings, and cable represented

¶ *"We have the finest system of telephone communication service in the world. Indeed, it is not an exaggeration to say it is the epitome of industrial organization in the United States. And, it is appropriate that I pause here to note that all this is the product of private initiative under the American free enterprise system, disciplined by government regulation only to the end that it serve the public good."*

around 10 or 12 per cent of expenditures for new construction in 1950. It is estimated that about 25 per cent of expenditures for new construction this year and 20 per cent of plant in service at year end will be electronic. By 1965 about 50 per cent of expenditures for new construction is expected to be in electronic categories.

First installation of full electronic central office switching will be made within two years. Because of the speed with which this equipment will operate, less equipment will be needed. Therefore, it will take up less building space than electromechanical switching equipment. It is expected that there will be a gradual change to all-electronic switching systems throughout the industry. But electronic switching equipment is expensive. While in the long run it will provide cheaper, as well as better, service, it will pose some problems for regulatory commissions to meet.

Electronic switching is just one of many technological advances in the industry. Some are here; some are in the future. One that is here now is the transistor. It was just a few years ago that this invention was announced. Today the transistor is playing a vital part in the complicated switching systems that in a few years will enable any telephone user to dial his own calls across the continent and, possibly, around the world. In fact, people in many communities are now able to dial any one of some 18,000,000 phones in cities throughout the country. The record of the call is automatically tallied by another marvelous machine with logic and memory functions.

The use of microwave radio facilities for the provision of toll telephone and television network services is continuing to grow. About 20 per cent of total toll telephone circuit mileage and 75 per cent of the television channel mileage are now being provided by microwave. New microwave systems are under development.

Just a few weeks ago there was announced something that is still off in the future somewhere: the picture phone. Of course, there are many problems to be worked out before the picture phone can be made available. These include such things as how to deliver cheaply, anywhere, all the circuits and equipment anyone wants for picture or voice.

There are many other new things in one stage or other of development—the solar battery, for example, and the possibility of wave guides with a potential transmission band width of 40 billion cycles.

Neither the industry, the public, nor we regulators will be satisfied until these new innovations have been beneficially harnessed into service.

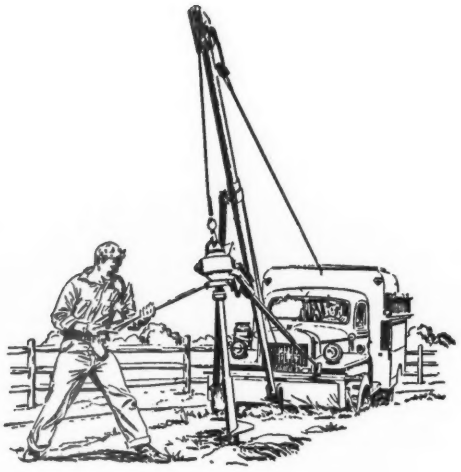
The telephone industry has also played a key part in our nation's defense. During the recent wars, the entire industry contributed notably in undertaking countless research and development projects in aid of our national defense. For example, the Bell Laboratories undertook more than 1,200 such projects itself. Currently, telephone people are working on SAGE—an Air Force project designed to give integrated control to our nation's air defense. Telephone companies — independent, RTA co-operative, and Bell—have been requested to provide the communications facilities required to tie the SAGE system together.

CERTAINLY, the magnitude and complexities of the regulatory job have been without parallel in history. In no other period has the telephone industry grown in so many dimensions, so rapidly, and required such huge amounts of new capital. In no other period have the forces of inflation had such continuing impact upon operating costs, revenue requirements, and rate levels.

These developments have, in turn, accentuated the importance of all regulatory determinations. Some of the more significant determinations relate to depreciation rates, equitable and workable procedures for separating and allocating costs between state and federal jurisdictions, and accounting regulations suitable to the contemporary needs of the regulatory agencies and consonant with the technological changes in the art and methods of furnishing telephone service. All of these developments have also added to the difficulties of maintaining a proper balance between the interests of the investor and the consumer of communication services. By their record of performance under these most difficult circumstances, regulatory commissions deserve the trust and confidence of the public and the industry.

In reliance upon the regulatory process and the soundness of regulatory decisions and policies, the telephone industry has gone forward during the past decade with a program of expansion—in the order of $10 billion—unparalleled in any other segment of our economy or industrial history. The pace continues unabated. Present industry plans call for more than $2 billion in expenditures for construction this year, and probably more for next year.

WE have the finest system of telephone communication service in the world. Indeed, it is not an exaggeration to say it is the epitome of industrial organization in the United States. And, it is appropriate that I pause here to note that all this is the product of private initiative under the American free enterprise system, disciplined by government regulation only to the end that it serve the public good. Regulation has not been a deterrent or handicap to progress. On the contrary, it is entitled to a considerable share of the credit for the present healthy condition of the telephone industry. Regulation has successfully met its basic responsibility of seeing that the public has adequate service at a price that is reasonable and fair to all. I have full confidence that our regulatory agencies will meet the ever more challenging future wisely and well.



The USITA—Knight Errant Of the Independents

The national independent telephone association, some sixty years old, is in its prime of life. The association has acted both as a stimulator and a catalyst to the rapidly changing technology of the telephone industry, aiding the small independent companies to adapt themselves to meet inexorable change.

By MERLE M. HALE*
PRESIDENT, UNITED STATES INDEPENDENT TELEPHONE ASSOCIATION

In spite of two major depressions and two world wars, the independent telephone industry has emerged as one of the truly dynamic forces in American business life today.

The 4,714 independent (non-Bell) telephone companies of America, which serve 11,000 communities and two-thirds of the geographical area of the country, now operate 8,461,000 of the 56,490,000 telephones in the United States, its territories, and possessions, and have a total plant investment of $2,042,822,000. While the country's population increased 31 per cent during the 20-year period from 1935 to 1955, the number of independent telephones soared from 3,185,000 to 8,461,000 or 166 per cent.

Our stalwart industry—which justly has been called "America's Little Giant"—owes its progress, its strength, and its vitality to many things. Not the least of these is its allegiance and its adherence for nearly sixty years to its national trade organization—the United States Independent Telephone Association—which

*Also, president Lincoln Telephone & Telegraph Company. For additional personal note, see "Pages with the Editors."

has promoted, guarded, and defended the interests of the independent segment of the industry during most of its remarkable lifetime.

Most of us, I am afraid, are inclined to take our trade associations for granted. We know they are there, we read their news bulletins, we go to their conventions once a year, and we pay our dues. But that is about all. Some of us serve on committees and we know that the association is doing a job for us; but many, I am convinced, are not fully appreciative of how —and why—it functions and what an important contribution it makes, year in and year out, to our general welfare.

WHILE my company has taken an active part in the affairs of the United States Independent Telephone Association, it was not until after the distinction and honor of its presidency had been conferred upon me a year ago that I acquired a truly realistic appreciation of how well and capably our interests are being served by our association and its competent Washington staff. For this reason, I am glad to have this opportunity to jot down for the editors of PUBLIC UTILITIES FORTNIGHTLY some of my observations and beliefs regarding the value of belonging to a well-run trade association like the United States Independent Telephone Association.

Our national telephone association came into existence back in 1897—nearly sixty years ago—because it filled a need —the need to protect the broad interests of independent companies and their manufacturers. That need has continued down through the years, and it is my opinion that a strong, healthy, financially secure association of national scope is more vital to our well-being today than at any time in our history.

A trade association is made up of people in the same kind of business who voluntarily get together on a nonprofit basis to advance their common interests. It engages in those activities which its members can do more economically and effectively by working together than separately. USITA was organized in recognition of these facts and in recognition, too, of the fact that

1. A trade association can study long-range political and economical developments with more perspective and foresight than can an executive of an individual enterprise who is burdened with daily operating responsibilities.
2. A trade association can command, as an organized group, a hearing from investors, labor, and government better than can an individual concern.
3. An association, properly staffed and managed, can do much to save American industry from the encroachment of government control, from the tyranny of shortsighted labor leaders, and from the stagnation that sometimes besets an industry.

THE USITA immeasurably has helped our industry to adapt itself to the rapidly changing technology of the world's most efficient business system, and in innumerable ways has sped its progress.

Through the wide range of activities of USITA, the telephone industry has accomplished many major achievements that would have been impossible of attainment without co-operative effort. Time and space do not permit a recount of these accomplishments here, but a recent case in



The Importance of the USITA Rôle

"A WIDER knowledge of the activities of our national association will help cement the feeling of mutual relationship among those who have faith and confidence in the private enterprise system—the system that has been so well exemplified since the turn of the century by independent telephony. Never has the association been better geared for important service to its members than now. It has a large number of vital projects on its agenda. With the continued support and co-operation of independent operating companies, manufacturers and suppliers, directory publishers, and trade magazines, and other firms which specialize in meeting the needs of our industry, we can go on to new goals."

point was the USITA-sponsored movement to include reimbursement to utilities of costs incurred for relocation of facilities under the terms of the federal highway construction bill.

Thumbing back through the pages of our record, it is easy to see why the USITA has had a great history. Over the years it has been a potent, constructive influence in many ways of great value to both operating companies and the firms supplying their equipment and other operating needs. The wage-hour exemption is a striking illustration. Toll compensation is another. Still another is the § 2(b)(2) exemption from the jurisdiction of the Federal Communications Commission.

Services being performed today by the USITA for the industry are many and varied. Broadly speaking, however, they can be grouped under half a dozen major headings.

Legislative

OUR Washington office is constantly alert on the legislative front to protect the interests of all independent operating companies whose equipment needs are taken care of by 150 manufacturers and suppliers. It studies proposed laws affecting our industry and makes appearances where necessary before congressional committees. The association office daily is in touch with important government offices and military agencies whose actions

directly affect our well-being. Our association's officers, directors, and committee members assist the Washington staff in promoting understanding between our telephone companies and these agencies.

Toll Compensation

THROUGH its full-time toll engineer and hard-working committees, the association supervises studies and negotiates with the Bell system for increased compensation for independent companies on interchanged business when such increases appear to be justified. Today all of our companies (large, medium, and small) are reaping directly—and our manufacturers and suppliers indirectly—the financial benefits of these activities extending over the past twenty years.

Information

DISRAELI once said: "The more extensive a man's knowledge of what has been done, the greater will be his power of knowing what to do." Such knowledge in the area of independent telephony is imparted at frequent intervals in member letters by our Washington staff. These letters contain current information and advice on such matters as legislation, court decisions, government orders, merchandising activities, public relations, and other developments affecting our industry. One of the basic jobs of the USITA, like that of any other trade association, is to provide information for its members. The association is a reservoir of information vital to our welfare.

Business today sits on a powder keg. Daily we face the threat that Kruschev and Bulganin will stop grinning, that border incidents between Israel and Egypt will ignite World War III, or that some other untoward incident will occur elsewhere in the world, any of which could return our companies to the emergency controls of war times. None of us soon will forget the yeoman service performed by the United States Independent Telephone Association during World War II and the Korean "police action" in getting to us speedily the details of government actions and zealously representing our companies in the formalization and administration of particular control orders. The value of such services cannot be overestimated.

Statistical

OUR national association furnishes us with accurate and revealing statistics to help our companies gauge their growth. Each year it publishes a statistical volume which is of great help to our companies as an aid in comparatively testing the efficiency of their individual operations.

Merchandising and Advertising

THE association provides us with better tools for merchandising our product. It buys advertising space in national magazines to help produce the best possible business climate for the continued growth of the independent telephone industry. Expert service and advice for member companies on the local advertising level also are furnished. Information regarding current and tested public relations techniques is disseminated.

National Convention

EACH year the association conducts a national convention where manufacturers' exhibits of latest equipment are displayed, where speakers of national

prominence are heard, and where mutually minded telephone people from all over the United States and its territories assemble to exchange ideas and enjoy the fellowship of social contact. (Our fifty-ninth annual convention will be held on October 15th-17th.)

THE benefits derived from membership in the United States Independent Telephone Association were admirably summed up a little while back by Francis X. Welch, long a keen-minded observer of the telephone scene, who said he sensed at our last convention "a strong feeling of awareness on the part of the independent telephone people that their industry is being confronted with a new challenge in carrying out its traditional public service obligation."

Others who have ring-side seats upon the national scene, and who have firsthand knowledge of the good that trade associations do, also have spoken.

"As a businessman, I well know the value of the service which a good trade association can provide its membership," says Secretary of Commerce Sinclair Weeks.

George P. Lamb, well-known Washington attorney and a recognized authority in the trade association field, has this to say:

> Trade associations are essentially democratic in their organization. Dues are weighted in accordance with ability to pay. Freedom of speech is an indigenous right. Knowledge is exchanged. The smallest company's executive can be and frequently is elected to the presidency. The exercise of democracy in its purest sense is found more in trade associations than in most other organizations in society.
>
> When democratic institutions are crumbling around us in the political world, when the paternalism of the American government encompasses the welfare of the individual from the cradle to the grave, and when the very security of the country seems to demand procedures foreign to the freedoms we have known, the trade association stands as a powerful institution which can, if encouraged, help guarantee the continuation of democratic institutions.

THE USITA meets all these standards enumerated by Mr. Lamb, and it stands today, as it has for nearly threescore years, as a bulwark of strength on the fighting line in behalf of our great industry. Its unselfish services will continue to help the industry go on to greater triumphs in its proud tradition of public service.

A wider knowledge of the activities of our national association will help cement the feeling of mutual relationship among those who have faith and confidence in the private enterprise system—the system that has been so well exemplified since the turn of the century by independent telephony.

Never has the association been better geared for important service to its members than now. It has a large number of vital projects on its agenda. With the continued support and co-operation of independent operating companies, manufacturers and suppliers, directory publishers, and trade magazines, and other firms which specialize in meeting the needs of our industry, we can go on to new goals.



Planning for Modern Independent Telephone Service

The movement of both people and industry from the old centers has not been without its advantages—for the independent telephone companies. This has benefited the General Telephone System, and may do the same for other companies.

By DONALD C. POWER*
PRESIDENT, GENERAL TELEPHONE CORPORATION

Any smart child who has played with a kaleidoscope knows that, despite the constantly changing patterns and designs he sees in this interesting little toy, the actual physical component parts are the same. It is the movement and the timing which create the variation in patterns which meets his eye.

The independent telephone companies of the United States are experiencing rapid changes today, just as they have always witnessed changes in more than a half-century of their existence. Yet the independent industry is performing today, and will in the indefinite future perform essentially the same function that it has always performed with relation to the Bell system organization, in rendering complete and adequate telephone service to the American public. In a word, that is to complement the service areas of the Bell companies by bringing equally up-to-date and satisfactory service to the wide geographical area where the independent telephone companies are responsible for service.

But it is the times which change, and the demands for service which change along with them. It follows logically that the up-to-date independent telephone com-

*For additional personal note, see "Pages with the Editors."

pany must accordingly modernize its own setup in order to meet the new requirements. Hence, while the service areas will probably remain the same, as between Bell and non-Bell organizations for the indefinite future, we are witnessing a certain amount of consolidation and reorganization between the corporate units of the independent group. And there will probably be more of this, for the simple reason that the independents are finding themselves standing on the very threshold of increasing opportunities. They are riding a trend resulting from overgrowth and relocation of both population and industry. Both of these are gravitating more and more towards the independent company service territory. The opportunities of the future grow more promising with each passing day.

BUT since every opportunity carries a corresponding responsibility, the modern independent telephone company simply cannot do the job that needs to be done in 1956 with the tools fashioned for the job load of one or more decades ago.

That, briefly, is the reason behind the constant changes that have been going on in the General Telephone System. This writer is naturally more conversant with the General Telephone System than with the operations of other independent telephone companies. And so this article is necessarily based on the structural changes and plans of the General Telephone System. But it should be understood simply as one case history, even though the General organization is now, by far, the largest single corporate system of the independent industry. Yet, other telephone companies are faced with similar problems and similar opportunities. They will solve those problems and cash in on their opportunities to the extent that they, too, can adjust their operations to modern-day demands and the prospective requirements of tomorrow. At least that is this writer's considered judgment and humble opinion.

In fairly recent times, a good many people in the United States did not even realize that there was an independent telephone industry. But thanks to the widespread advertising and publicity, sponsored by this industry, most readers of this magazine are well aware, in a general way at least, that there are over 4,600 of these companies operating in about two-thirds of the geographical areas of the United States and serving about one out of every seven telephones in the United States and its territories (about 8,500,000 in all). It is not so generally realized that the independent companies, for the most part, followed rather than preceded the establishment of the Bell system organization. Independents began to come into the picture in large numbers around the turn of the century, after the expiration of basic Bell patents in 1894.

BACK in the early part of the twentieth century, when telephone service demands were simple and almost primitive by modern-day standards, the local telephone company was almost an ideal "small business" in a small community. Once it established its service area, and got its plant into operation, it was more or less economically complete unto itself. It bought occasional supplies from independent manufacturers, but growth was gradual and the complication of long-distance toll traffic, automatic dial, and other expensive and intricate developments had not yet made their appearance.

It was not surprising that a number of family-owned companies sprang up, reflecting the industry and thrift of the small businessmen of that era.

Today we know, of course, that such an organization cannot keep up with the demands of modern telephone service. And it is not surprising that there has been considerable reorganization and consolidation to conform to the changing patterns of our economic kaleidoscope.

And yet the independent telephone industry still serves this nation in a most essential way, just as it has in the past. There are, today, in the independent telephone industry, more people employed at better wages, more stations served with a higher quality of service, more dollar volume of traffic, and, most important of all, more opportunities for future growth and increased revenue than ever before in the history of this industry. What's more, all these trends should continue upward for the foreseeable future. That will mean still more jobs, still more stations, still more opportunities, etc. In short, the independent telephone industry is emerging upon the most dynamic phase of its existence.

IN no other utility industry do we see such an interesting development as that which has occurred in our American telephone industry as a whole. Here we have the operations of one large business organization—the Bell system—paralleled harmoniously by smaller independent company operations. That has not happened in our railroad, gas, electric, or other utility services. But there were good reasons why it turned out that way in the telephone business. It is because the telephone business demands at the same time not only an extraordinary degree of coordination between service areas, but also a certain amount of flexibility and variation in its internal organization as between areas.

One might well wonder what our American telephone service would be like today if we had not developed this dual system of service responsibility. If, for example, there were only one single giant corporate monopoly, or if, on the other hand, the old localized setup had persisted, we can easily imagine numerous complications, economic as well as political.

The General System followed the pattern of small-town development by local businessmen. It started in Richland Center, Wisconsin, where two former staff members of the Wisconsin regulatory commission, the late John F. O'Connell and the late Sigurd F. Odegard, joined in the venture to buy out the local telephone company. That was in 1918. They

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spread their operations to Madison, Wisconsin, under the name of Commonwealth Telephone Company. In the mid-1920's Odegard established contact which led to the subsequent acquisition of some independent properties around Long Beach, California. Some middle-west utility capital was brought in and the result was the establishment of the Associated Telephone Utilities Company in 1926, which is the corporate predecessor of the General Telephone Corporation, born in 1935.

All along the line, the former managements had steadily acquired franchises with growth potential. But it was not growth for the sake of growth. The General System's heritage has been fortunate in growing in an economically integrated way. Properties were acquired which could be operated efficiently and economically in co-ordination with other properties already established in the System. The depression years of the 1930's resulted in some financial adjustments. But with the establishment of the General Telephone Corporation, succeeding to the Associated interests in 1935, a firm financial basis was established.

By the end of World War II, there were 22 companies in the General System, operating in 19 states and serving about 700,000 stations. The company's dividend record was one of steady payment since its first full corporate year of 1936.

We all remember, of course, that World War II was a period of artificial restraint, if not stagnation, for much domestic corporate operation even in the utility field. There were government restrictions on the use of man power and materials, because of the requirements of the war effort. There were also commodity price controls, which indirectly affected utility operations even though they did not apply directly to regulated utility rates.

When World War II ended, the independent telephone companies faced new complications in the form of a savage inflationary trend, which set in immediately following the lifting of price controls. Because telephone companies, like other public utilities, are subject to rigid rate ceilings imposed by commission regulation, they are particularly vulnerable to rapid rises in operating costs. Readers of this publication are all too familiar with the phenomenon known as "regulatory lag," whereby regulated utilities may be subject to cumulative losses in revenues due to expense and delay in obtaining actual rate relief.

General System companies were no exception. But telephone companies generally were placed in a difficult position because these skyrocketing expense boosts, due to inflation, came at the very time when they were confronted with an equally precipitate demand for service expansion. It was at this point that the elasticity of system-wide affiliation served the General System companies in good stead. A co-ordinated drive was launched for rate increases in all states where System companies were serving. Only in this way were these companies able to get the necessary rate relief for the attraction of needed capital to take care of enormous plant investment required. The plant investment was required, in turn, to take care of the postwar demand for service expansion which had been pent up during the war years.

It is very doubtful if any of these operating companies could have done the



The Advantage of the Independents

"THIS independent telephone business is going to grow because it cannot do otherwise. It stands in the very roadway of projected population and business growth. According to a recent report of the Census Bureau, the civilian population of the United States increased 7.9 per cent between 1950 and 1955. Now, it is an astonishing fact that virtually all of the increase was accounted for by a gain in the population of 168 standard metropolitan areas. When we look at the rate of growth within these standard metropolitan areas, we see that the outlying parts grew seven times as rapidly as the central cities."

necessary job on their own, without the assistance of system-wide affiliation. Certainly, they could not have done it as well.

THUS, we see that change and adjustment to meet every new and different requirement are not new-found or recently adopted attributes of the General System. The casual observer of the enterprise might get that fleeting impression, in the light of the more spectacular amalgamation of the General System with the Theodore Gary & Company interests, which took place in 1955. But actually, as we see from this brief narrative, elasticity and change have been characteristic of the General organization, virtually since its birth in and corporate evolution from the simple dairy community of Richland Center, Wisconsin.

One of the things which we found needed changing in our General Telephone System was the names of separate operating companies. These companies had been accumulated from time to time under their own traditional names which were well established and respected in their own service areas. But no one, not knowing

the inside facts of corporate affiliation, could ever guess from these names whether they were or were not subsidiaries of the General System. And since the demands for capital financing had long exceeded the supply of the local money markets, the need for a stronger centralized credit position suggested the logical step, based on the old maxim: "In unity there is strength."

And so on April 10, 1952, all System companies were mustered into a uniform name classification. All names started with "General Telephone." The only differences were the sectional divisions indicated at the end of the name. Thus, Southwestern Associated Telephone Company became General Telephone Company of the Southwest, Kentucky Telephone Company became General Telephone Company of Kentucky, the Associated Telephone Company, Ltd., serving the California area, became General Telephone Company of California, etc. It might seem like a superficial thing to the casual observer, but we have found that that change was the most fortunate thing we ever did in terms of gaining recognition for the company. To add to this momentum of increasing unified prestige, a common symbol, showing a handset telephone, was adopted for use by all General System companies. A national advertising campaign was launched, which last year had a combined System budget of $750,000, almost equally divided between national and local advertising.

But our postwar General System changes did not stop with mere face lifting, so to speak. There was also some internal streamlining in order. To gain the maximum advantages of the System set-up in the form of economic and efficient operations, we made certain structural changes. Before 1950, General service areas had been split into four groups headed by a central manager, who interposed an intermediate tier of managerial responsibility between the operating company and the parent organization. This was abolished. Presidents were named for each of the 15 operating companies directly responsible to General headquarters in New York. And changes were also made at General's headquarters. Instead of the old-fashioned top holding company setup, a broader-based, hand-picked team of operating management experts was established. In this way, the concentrated experience of the entire System could be placed at the service of each company of the System. Other opportunities for realizing the maximum potential of System organization were recognized and introduced, such as the establishment of uniform accounting and reporting, even standardization of stationery, bills, and other forms.

The result has been not only the realization of considerable economies and the elimination of confusing variations and unnecessary duplication of effort, but also a powerful aid to uniform and co-ordinated operations. We are now able to check System operations on a comparative basis, easily and regularly, and spot incipient difficulties sometimes even before they arise. In short, we tried to supply an answer to the plausible question: Why have a System operation unless full advantage is taken of every benefit which it offers?

The most recent and widely publicized change in our General System, of course, has been its amalgamation with the Theodore Gary interests, previously

the second largest independent telephone organization. But here again the step taken was a logical one. Before this step was taken in 1955, both the General System and the Gary System were out of balance with respect to operating telephone properties and manufacturing properties. General received 94 per cent of consolidated net income from telephone operations, only 6 per cent from manufacturing. Gary, on the other hand, had an equally top-heavy situation, *but almost in reverse* —19 per cent operations and 81 per cent manufacturing. Obviously, these two systems needed each other and it was to the mutual advantage of both that the Gary properties were brought into the General System.

Today, the combined operations place General in ownership or control of more than a billion dollars worth of assets in foreign and domestic telephone service and equipment manufacturing properties. It is today serving over 2,750,000 telephone subscriber stations in 30 states, in addition to operations in Canada, the Dominican Republic, and the Philippines.

So much for General System's growth and changes to date. What about the future opportunities and what about the changes which are taking place in the service areas served by General as well as other independent telephone companies?

If we examine the population changes which have been going on in the metropolitan areas of 50 of our largest cities, we will find that about two-thirds of these cities have independent companies operating in suburban or adjacent territory. Four of them happened to be served directly by independent companies in the downtown city areas.

Let us keep that picture in mind while we check over some census forecasts of future growth: Today, we have over 165,000,000 people; by 1965 we will have a total of 190,000,000 people; and by 1975 over 220,000,000. By 1965 California may well be our most populated state, surpassing New York. Other states which have shown the most rapid increase, percentagewise, are Florida and Texas.

Aside from the over-all shifts in population from inner regions to coastal regions, or from area to area, it is the pattern within the state, more specifically the relative growth between the central city area—comprising the city limits, the surrounding or suburban areas, and the outlying or fringe areas—which should command the attention of the independent telephone companies.

This independent telephone business is going to grow because it cannot do otherwise. It stands in the very roadway of projected population and business growth.

GENERAL TELEPHONE COMPANY OF THE SOUTHWEST

Area	*Population*			*Telephones*		
	1950	*1955*	*1960**	*1950*	*1955*	*1960**
Baytown	35,206	45,586	68,679	8,342	11,506	22,441
Dickinson	10,026	22,974	42,000	1,781	3,509	13,799
Port Lavaca	3,900	7,800	12,291	1,107	2,285	8,062
Hobbs-Lovington	27,004	31,475	46,322	4,669	10,011	14,493
Garland	10,291	27,037	44,000	3,001	7,668	13,800
Total	86,427	134,872	213,292	18,900	34,979	72,595

*Estimated

According to a recent report of the Census Bureau, the civilian population of the United States increased 7.9 per cent between 1950 and 1955. Now, it is an astonishing fact that virtually all of the increase was accounted for by a gain in the population of 168 standard metropolitan areas.

When we look at the rate of growth within these standard metropolitan areas, we see that the outlying parts grew seven times as rapidly as the central cities. In other words, the increase within the central city limits was only 3.8 per cent, while the increase in population outside of the central city areas, but within the metropolitan orbit, was 27.8 per cent.

We can realize what this means to the independents, when we consider what has happened, dollarwise, in the volume of business growth in these three years in almost any large American city. And as already stated, most of them have independent companies serving somewhere within the perimeter of the so-called "outlying" area. Let us take the city of Cleveland as a fairly typical example.

Retail business in central Cleveland increased 19 per cent, from $1.1 billion in 1948 to more than $1.3 billion in 1954. During this same period, business in the Cleveland suburban area increased 32 per cent from $1.4 billion to nearly $2 billion. But in the "outlying" area, the increase was 79 per cent, or a jump from a third of a billion to more than $600,000,000.

For another example, take the Los Angeles-Long Beach area, where the General System is strategically located all around the central city area. During this same period, from 1948 to 1954, the U. S. Census of Business showed an increase in the central city retail business of 40 per cent, an increase in the metropolitan area of 52 per cent, and an increase in the outlying or fringe area of 66 per cent.

There are many reasons for this dynamic centrifugal growth from the central cores of cities to the outlying areas—new homes, new families, and the steady trend away from the older congested city sections to the suburban, and even further away. Retail business inevitably follows this trend with shopping centers, building, and satellite cities. It has all become a familiar pattern. And, in the near future, there will be a network of new federal-aid highways opening up back-country communities and spawning new settlements where corn fields now exist.

This brings the writer finally to some specific case histories, taken necessarily from General System company experience, but fairly typical of the new business opportunities which are going on all around us in areas served by independent telephone companies. These have been classified according to operating areas and manufacturing, and constitute only a partial or sample picture of what lies ahead.

General Telephone Company of California (from a recent company brochure): "We will install our 1,000,000th station in 1958, *only two years away.* We will pass the 1,500,000 mark in 1962, *six years from now.* By 1980, looking ahead twenty-four years, we will be serving approximately 3,500,000 telephones.

"Experience has shown that the ratio of employees to stations follows close to one employee for every 100 stations. Therefore, we can reasonably expect to have approximately 10,000 employees by 1958. In six years, if the forecasts prove correct, we will have around 15,000,



The Future Growth of the Independents

"THERE are, today, in the independent telephone industry, more people employed at better wages, more stations served with a higher quality of service, more dollar volume of traffic, and, most important of all, more opportunities for future growth and increased revenue than ever before in the history of this industry. What's more, all these trends should continue upward for the foreseeable future. That will mean still more jobs, still more stations, still more opportunities, etc. In short, the independent telephone industry is emerging upon the most dynamic phase of its existence."

which is *double* our present employee count.

"Returning closer to the here and now, studies of this year's activity indicate that the boom is well under way. Our forecasters expect that we will add about 100,000 stations to our total in 1956 (compare this to the record gain of 81,232 in 1955)."

General Telephone Company of Illinois: In 1940 this company had only 75,000 telephones; in 1950, 150,000; and as of June 19, 1956, General Telephone of Illinois had 200,000 telephones. The fastest-growing exchange percentagewise is Wonder Lake. In 1950 this exchange had only 240 telephones. Today Wonder Lake has 1,134 telephones. Wonder Lake, Illinois, has become a resort town. People from Chicago are building homes in the Wonder Lake area. The Carbondale, Illinois, exchange in 1950 had 3,600 telephones. Today this city has 6,000 telephones. Carbondale's spectacular growth can be attributed to the phenomenal growth of Southern Illinois University.

GENERAL TELEPHONE COMPANY OF INDIANA, INC.: This company's most promising growth area is generally in the northwest part of the state. More specifically, the greatest single location for

growth is the area immediately surrounding what is called Burns Ditch or the proposed Burns Harbor. There are plans afoot to make Burns Ditch a part of the Lake Michigan terminus for the St. Lawrence seaway and erect port facilities which could, within a few years, mean an increase in telephones of about 3,000 per cent in that immediate area.

General Telephone Company of Kentucky: For the Lexington exchange, it is expected that by 1960 four new industries will create a total of about 9,000 new jobs in the area. Assuming conservatively that the surplus labor market will supply about one-third (3,000) of this requirement, it remains that a minimum of 6,000 new families will move into the community. So, in round figures it is estimated, provided, of course, the economy remains fairly level, that by 1960 there will be 10,000 new jobs in this exchange area and a population of 150,000 compared to an estimated population at present of 115,000. In other areas served by this company, expansion is also on the move. At Ashland, the Armco plant is being expanded. At Russell, the Chesapeake & Ohio Railroad is increasing the scope of its yard operations. In the Hazard area, there is under consideration a railway link connecting the L&N and C&O railroads at a cost of $2,000,000.

General Telephone Company of Michigan: The Hooker Chemical Company, E. I. DuPont & Company, and the Linde Air Products Division of Union Carbide & Chemical Company are an integrated facility representing a capital investment in the neighborhood of $35,000,000. Hydrogen chloride and steam from the Hooker plant will be fed by pipeline to the DuPont plant, and acetylene from the Linde Air Products plant will also be piped to the DuPont Company. The location of these plants, employing between 500 and 600 employees in Montague within this company's Whitehall exchange area has required expansion of facilities and will require more.

General Telephone Company of the Southeast: The telephone growth and development at Shaw Air Force Base, South Carolina, located approximately ten miles west of Sumter, South Carolina, which is served as a private automatic branch exchange installation from the Sumter exchange, are typical of the phenomenal growth and development that have occurred throughout the state of South Carolina in recent years. Administrative PABX telephone service furnished by the company under contract with the Air Force has grown from approximately 200 stations in 1946 to more than 1,800 stations serving the base proper and the 500 units of the Wherry housing project for Air Force personnel, located on the base. The exchanges of the company in South Carolina served 9,329 telephones in 1944. Today, those same exchanges are serving more than 26,500 telephones.

General Telephone Company of the Southwest: Texas, New Mexico. See table, page 576.

Automatic Electric Company—manufacturing: A new factory has recently been expanded in size by some 200,000 square feet—from 1,300,000 square feet, as originally announced, to approximately 1,500,000 square feet, or about 34½ acres of floor space, at the present time. Ten

years ago, in 1946, there were 2,788 persons working at Automatic Electric. Employment now is in excess of 7,000. During the 10-year period since the end of World War II, factory production has more than tripled. Approximately 400 telephone companies, operating more than 1,500 exchanges, are using this company's dial equipment. Some 1,250 telephone companies use its telephones, and about 1,750 purchase supplies from it. Over 2,000 business and industrial firms use Automatic Electric relays and switches.

FINALLY, as to technical improvements and merchandising possibilities space limitations do not permit me to do more than merely mention, in passing, that they will more than augment the telephone business opportunities of mere population and business growth statistics. There is no reason why, with smart and aggressive sales promotion, two or more telephone subscribers should not grow in the *same* household where only one grew before. In addition to such multiple-subscription possibilities, there are a host of modern telephone appliances and improvements which have already become familiar, in large part, to our telephone-using public—colored telephones, extensions in every major room of the house, and various business-aid phones, such as the loud-speaking telephones, which can be operated without lifting the handset, and the automatic secretary, the hearing-aid phone, and special signaling devices. This writer could go on and on, but as a non-technical man he had better stop here.

Suffice it to say, there is real gold in those hills and plains where independent telephone companies are serving. But to mine that gold they must be alert to the constant changes, the special needs of each passing period. By accommodating themselves, to the extent of their abilities, to conform to these changes, they can and, I trust, will realize their greatest potential for public service in the over-all public interest. Eternal vigilance is not only the price of liberty, it is also a mighty good motto for the telephone business.

"OCCASIONALLY, *one meets professional people who confuse pride in their profession with personal ability. Thus sometimes engineers speak of personal success, or the lack of it, as if only engineers could or should be successful. And this strange view is not confined to engineers. I know a few scientists who are satisfied that only scientists can doctor the ills of the world, including political sickness. Sometimes a business school graduate with the benefit of a fifth or sixth year of formal education, is perfectly certain that no one but a man with his educational background can solve the major problems of business. Even some lawyers are quite sure that lawyers can run businesses better than the businessman.*

"Of course, all this is really nonsense. A professional degree never has been a working substitute for gray matter. Nor is a professional education any substitute for other human elements that make for success, such as dedication to the job and ability to work with others."

—KEITH S. MCHUGH,
President, New York Telephone Company.



Merchandising—New Look at an Old Picture

The Bell system (American Telephone and Telegraph Company and its affiliates) has applied the term "merchandising" to a broad concept whereby the customer's desires, anticipated as well as expressed, are studied and translated into workable plans for new, more attractive service.

By JAMES W. COOK*
VICE PRESIDENT, AMERICAN TELEPHONE AND TELEGRAPH COMPANY

AMERICANS are creating a standard of living that the world has not known before. More capital is at work producing more things. There are more people with more money to buy and more time to enjoy their purchases. With this comes the desire for greater speed in producing and distributing the diverse products of American enterprise. Communication is the nerve system of all this activity. High-speed communication being the product we sell, the telephone companies are playing a big part in the country's present prosperity, and in shaping an even brighter future.

The job facing America's telephone industry is to keep pace with, and even anticipate, this advance of our people toward a better kind of life. We intend to meet the challenge. One evidence of this intention is the formation of merchandising departments in various parts of the industry, not only among the Bell companies but among the independents as well.

It may seem paradoxical that an industry that has doubled in size in ten years should feel it necessary to step up its merchandising effort. The reason becomes clearer when it is understood that we use the word "merchandising" in a broader sense than just selling. Rather we use it in relation to the entire process of provid-

*For additional personal note, see "Pages with the Editors."

ing service to the user, beginning with the earliest visualization of a future need. Merchandising applies to this whole process a concept or philosophy whereby the customer's desires and preferences, whether expressed or anticipated, are constantly studied and translated into working plans. Merchandising people work and counsel with those responsible for inventing and developing new services and devices; for measuring the market; for manufacture, pricing, and distribution; and for advertising, selling, and rendering the service. The aim is for a service so attractive and so high in quality that its use will be repetitive and expanding.

VIEWED in this light, merchandising is not something new in the telephone business. It is new only with respect to its renewed emphasis. You might say it is an attempt to take a new look at an old picture.

The growth of the telephone is not now, and never has been, something that just happens. It is the result of a constant spirit of wanting to make things better than they are. There has been a continuing process of inventing new services, creating new markets, and straining to meet the resultant demand. Our present emphasis on merchandising is clear evidence of our intention to intensify this effort that has worked so well in the interest of the American people and their economy.

Failure at any time to provide fully and quickly everything the public expects of us must be a matter of great concern. No complacency can arise from the fact that ours is an essential public service. Rather, this increases the obligation to make the service at all times the best we can provide. And when the customer wants our best effort enough to demand it and pay for it, we have every incentive for meeting his requirements fully.

WE sometimes hear this kind of comment: "Why does the telephone company have a merchandising department? You don't have competition, do you? You really have nothing to sell, have you? People have to have telephones and you're the only people who can furnish them, aren't you?"

There are two answers to such questions—a short one and a long one.

The short answer is that the telephone company does have competition—not only from the mail and the telegraph, and from autos and planes, but from every business enterprise aggressively seeking its share of the dollars people have to spend. To meet this competition, we *must* take the initiative—and we have done just that through the years. After all, there was a time when people did not have telephones, and only ten years ago half the homes in America got along without them. The 1956 American uses the telephone three times as much as his father did, and ten times as much as his grandfather did. His great-grandfather thought of it as a scientist's plaything, if indeed he thought of it at all. The use his son and grandson make of it will depend on how well the telephone companies do their merchandising job from now on.

In this respect the telephone industry differs but little from the automobile, electrical appliance, packaged food, or any other of the well-known "competitive" enterprises. As with them our success is the success of the market place, and the path to such success is no royal road.

The long answer to our question calls

for a discussion of what we mean by merchandising as applied to the telephone industry.

Anticipating Public Wants and Needs

THE first step in merchandising is to get an understanding of what the public wants or needs to the extent of being willing to pay its cost, plus a satisfactory profit to those who provide the capital that makes it possible.

Certain wants and needs are well known. These are the markets created by good merchandising work in past years. Often enough telephone users can be quite vocal about these, especially when what they want is not forthcoming quickly and in sufficient quantity. To understand these desires, the telephone industry needs only its eyes and ears.

Certain other wants and needs are not so readily apparent. But they can be determined by diligent inquiry. So we inquire—and in many ways. For example, the Bell system has at its disposal the results of systematic surveys based on the expressed opinions of about 160,000 telephone users interviewed every year. These interviews develop a fund of knowledge that can be used to guide us in improving present services and developing new ones. Similarly, we seek the public's advice on improvements in specific types of service, such as long-distance dialing or the public telephone. Extensive surveys are currently under way in five Bell companies to guide the future development of the telephone in rural areas. Some of our major industries having specialized communications needs are being comprehensively studied with the same objective in mind.

THE Bell system is now also working to create a market for *complete* home telephone service. According to a nationwide market survey made in 1955, 84 per cent of the system's residence customers *seem* perfectly satisfied with *only one telephone*. Yet in Baltimore, where four-fifths of the new homes built in 1956 are being prewired for telephones, with outlets in all living areas, more than 70 per cent of the homes are actually starting out with two telephones or more. Some have telephones in all living areas, and a few are even equipped so that, by locating a microphone and small loud-speaker at the front door, the doorbell can be answered from any of their telephones.

The Bell system is proceeding on the belief that the modern American home needs a telephone in each living area, col-

¶ *"AMERICANS are creating a standard of living that the world has not known before. More capital is at work producing more things. There are more people with more money to buy and more time to enjoy their purchases. With this comes the desire for greater speed in producing and distributing the diverse products of American enterprise. Communication is the nerve system of all this activity. High-speed communication being the product we sell, the telephone companies are playing a big part in the country's present prosperity, and in shaping an even brighter future."*

ored and styled to the specific requirements of that area. Good merchandising recognizes this need, even before householders themselves are aware of it, and by showing them that the need is there we will in time create a market.

The old goal "a telephone in every home" being substantially within reach, we have set for ourselves a new goal—"a complete telephone plan for every home." The same householders who now seem satisfied with one telephone connected to a line shared with one or more neighbors will in time be impatient if we cannot provide them with a line of their own and a telephone in every room, with a separate line for the teen-agers in many instances.

Planning the Product or Service

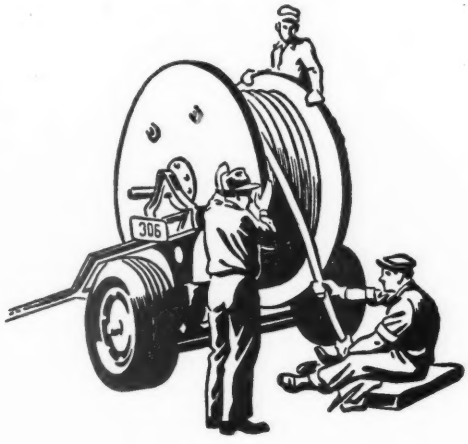
THE second step in the merchandising process is shaping the service to meet the public need, known or expected. This calls for further research in the physical sciences, and the development of entirely new or substantially improved instrumentalities.

The product of much of this effort lies behind the scenes. It is in the vital fields of transmission and switching, and finds physical manifestation in an infinite variety of central office parts and millions of miles of wire, cables, and radio circuits. Most of this our customers see only occasionally, and some of it not at all.

However, this research and development process also includes the instruments that the customer will see and handle, speak into and listen over. One project now under development is a telephone especially designed for bedside use. It will be small and lightweight so you can dial a call when you are lying in bed. It will be in the colors that market research tells us people prefer in the bedroom—white, pink, light blue, and beige. It will ring electronically through the receiver with a soft, undulating sound suited to the quiet of the bedroom. It will have a night light so it can be found in the dark, and the dial will light up brightly while in use. The merchandising objective of the development engineers is to make this telephone so attractive, from the standpoint of utility combined with beauty, that the women of America will want to install it in most of the 65,000,000 telephoneless bedrooms now in homes served by the Bell system.

THE need of business for faster and faster communication is making for new uses of the system's vast wire and radio network. Delegates to the Republican convention in San Francisco had before them *The New York Times* that New Yorkers were reading that same morning on their way to work. Proofs of the pages were "scanned" by an electric eye in New York and the facsimile signal carried to San Francisco over the same Bell system facilities normally used to carry television programs. Almost at the same time, in Los Angeles, Bell scientists were describing the new picture phone by which at some time in the future you will be able to see as well as hear by telephone. Also under development in the Bell Laboratories are systems of transmission by which typewritten material or the product of the new data processing machines can be carried over telephone lines at exceedingly high speeds.

Such developments as these are all part of the merchandising process which aims to anticipate the needs of American business for speeding up the distribution of goods and services.



"Housekeeping" for the Bell System

"THE fourth step in the merchandising process is to provide the facilities by which the service is given. In the Bell system this responsibility rests largely with the Western Electric Company. In 1956 Western is meeting the requirements of the Bell companies by supplying nearly three and a half-million central office lines, 110 billion conductor feet of cable, and nearly seven million telephone instruments, besides numerous items of lesser volume. To do this it is using more than 16,000,000 square feet of manufacturing floor space in 20 factory locations, whose production is flowing constantly to the telephone companies through 30 distributing houses strategically located across the nation."

Measuring the Market

THE third step in merchandising is measuring the market to be sure the right facilities will be at the right place at the right time.

Market measurement involves determining what people are likely to do at some future time. This is an uncertain undertaking, to say the least. But it is made less uncertain by intelligent application of what is known about economics, statistics, psychology, anthropology, and other social sciences. All these contribute to the techniques of "market research" or "public attitude research."

Social sciences are much less "exact" than physics, chemistry, metallurgy, and others used in the development of our physical facilities. Since they deal with the vagaries of the human mind, it may well be that they will never be quite exact. Yet there is a growing awareness that there are some laws governing human thought and habit and action that may be

almost as fixed as those of the physical world. If so, we have but to understand them better to know with more assurance what the future holds for us, and direct our steps accordingly.

Market research, like merchandising itself, is not a new thing to the telephone companies. We have studied and charted population and economic trends as a guide for estimates on which our construction programs may be based. Community by community, we have tried to gear our job to the introduction of new and expanding industries and the passing of old ones, as well as the shifts of family units from city to suburbs. We have had enough success in these efforts—not without some failures, too—to tell us how important it is that the future market be known and measured as accurately as possible.

We have also had encouraging success with new techniques of market research which involve sampling opinion of telephone users themselves as to their future communication needs. In a nationwide survey in 70 cities in the summer of 1955, a cross section of home telephone users told us which of eight colors they would prefer for their telephones. The most popular color in the survey proved to be the color that has been most frequently ordered, and the survey results foretold the proportions in which each color would be ordered with remarkable accuracy.

Research in these fields of human tastes, habit, and action is admittedly far behind the progress made in the more exact physical sciences. Yet we have had enough experiences with them to encourage us to go forward in the belief that they, too, will make significant and lasting contributions to the telephone industry.

Manufacturing the Facilities

The fourth step in the merchandising process is to provide the facilities by which the service is given. In the Bell system this responsibility rests largely with the Western Electric Company. In 1956 Western is meeting the requirements of the Bell companies by supplying nearly three and a half-million central office lines, 110 billion conductor feet of cable, and nearly seven million telephone instruments, besides numerous items of lesser volume. To do this it is using more than 16,000,000 square feet of manufacturing floor space in 20 factory locations, whose production is flowing constantly to the telephone companies through 30 distributing houses strategically located across the nation.

The construction program for which Western provides the physical equipment mentioned above exceeds $2 billion in 1956. All indications are that the demands upon it will be as great in the years immediately ahead.

When the scope of this manufacturing job is understood, the importance of both technical research and market research comes into clearer focus. The development work of the research laboratories must be in tune with the manufacturing requirements, and market research must help to determine in advance the nature and quantities of the materials that will be needed.

Pricing the Service

The fifth merchandising step is pricing the service. This is highly complex, for it must be done in such a way that it will both encourage the greatest possible use of the service and also yield a reasonable profit.

How much this profit should be is a matter of judgment and no doubt there will always be differences of opinion. Yet on certain fundamentals there must be full agreement. Telephone management has a responsibility to the millions of people whose savings provide our capital no less than to the millions who use the telephone service or the hundreds of thousands of telephone employees. Along with this is the certainty that if profits are not satisfactory to these investors they will withhold the funds required to meet the public's telephone needs.

To move out and remain ahead of demand, so that plant and facilities will be ready to meet anticipated needs, involves financial risks. To justify these risks there must be prospects of satisfactory profit. Accordingly, the effect of price on customer acceptance requires most careful consideration, so that a new service may both pay its way in dollars and make maximum contributions, through expanding usage, to the value of the telephone.

Advertising and Selling

THE sixth step in merchandising is the job of distribution. This brings the service to the attention of the prospective customer and convinces him he needs it.

Distribution involves the use of all the channels of advertising available to the telephone companies. When an automobile company has a new model, it might as well keep it in the factory if it is not prepared to advertise it. When the telephone company has a new line of color telephones, or a new device for automatic answering of the telephone, or a revolutionary new service such as the speakerphone, the quickest and most economical way to bring these new things to the attention of telephone users is through advertising.

We have also found that it pays to keep people constantly reminded of what the telephone can do for them, for in a very real sense a telephone call is a matter of impulse, and constant use of the telephone —including telephoning just for fun—is a matter of human habit that can be stimulated and maintained by suggestion.

The actual selling of the service is a responsibility shared by many people. While the Bell system has eight thousand people in its sales departments, this in no way diminishes the day-to-day merchandising responsibility of the business office representatives who talk with telephone users a hundred million times a year, the operators who actually put the calls through, and the installers and repairmen—telephone service experts all—who make 32,-

¶ "THE *final step in the merchandising process is the most important of all, for it is the end result to which all the others are directed. This is the actual handling of telephone conversations, now 180,000,000 a day, and maintaining the Bell system's $16 billion plant in a constant state of readiness to handle as many more calls as the American people may wish to make. The end objective of any merchandising effort is, after all, to expand the use of the product. Our product—the thing our customers are buying from us—is the telephone call.*"

000,000 annual visits to homes and offices.

Providing the Service

THE final step in the merchandising process is the most important of all, for it is the end result to which all the others are directed. This is the actual handling of telephone conversations, now 180,000,000 a day, and maintaining the Bell system's $16 billion plant in a constant state of readiness to handle as many more calls as the American people may wish to make.

The end objective of any merchandising effort is, after all, to expand the use of the product. Our product—the thing our customers are buying from us—is the telephone call. Measured by this standard, the merchandising program of the Bell system in years past has been a singularly successful one. It would be no overstatement to say that the telephone is one of America's great triumphs of merchandising.

The average American made 196 telephone calls in 1935, 263 in 1945, and 409 in 1955. In less than two decades we have made our product twice as useful to our customers. The merchandising effort of the telephone industry in the years ahead will be geared to the job of preserving and improving on that record. We confidently expect that the customer's use of the telephone will again be doubled before 1976.

USITA 1956 CONVENTION TIMETABLE, CHICAGO, ILLINOIS

Sunday, October 14th

1.00 P.M. Registration, Astoria Room, The Conrad Hilton.

Monday, October 15th

9.00 A.M. Registration, Astoria Room, The Conrad Hilton.
9.30 A.M. Plant Conference, Waldorf Room, The Conrad Hilton.
10.00 A.M. Commercial Conference, Lower Tower Room, The Conrad Hilton.
2.00 P.M. General Session, Williford Room, The Conrad Hilton.

Tuesday, October 16th

9.00 A.M. Registration, Astoria Room, The Conrad Hilton.
10.00 A.M. Traffic Conference, Waldorf Room, The Conrad Hilton.
10.00 A.M. Accounting Conference, Lower Tower Room, The Conrad Hilton.
2.00 P.M. Independent Telephone Pioneer Association, Grand Ballroom, The Conrad Hilton.
7.30 P.M. Annual USITA Banquet, Grand Ballroom, The Conrad Hilton.

Wednesday, October 17th

9.00 A.M. Registration, Astoria Room, The Conrad Hilton.
10.00 A.M. General Session, Williford Room, The Conrad Hilton.



Problems of the Small Telephone Company

Rising costs of labor and materials, and the expense of rendering not just "adequate" but modern telephone service have placed the small independent telephone company in a tight squeeze. In some cases the company of yesterday is almost too small to render the services required of it today.

By WILLIAM C. HENRY*
PRESIDENT, NORTHERN OHIO TELEPHONE COMPANY

THE field was opened wide for the formation of independent telephone companies with the expiration of the basic patents of The Bell Telephone Company in 1893. Doctors, storekeepers, or groups of individuals interested in their own local communities, and experiencing the need for convenient communications, organized telephone companies by the hundreds all over the United States. The large majority of these independent telephone companies were originally single exchange units serving only their own local villages or towns.

Telephone people are all familiar with the fact that service in the rural areas surrounding the magneto exchanges was provided for the most part by farmer-built and -owned multiparty grounded lines. Farmer or rural line companies were formed through party-line groups joining together and electing their own officers. Contracts were made with the exchange company for switching service for a payment of 25 cents or less per telephone per month. The period of years up to 1920 witnessed the greatest growth in number of individual independent telephone companies. At the end of that year there were over 9,200 separate companies, serving 4,995,400 telephones, or an average of 543 telephones per company.

NOTHING can diminish or detract from the monumental contribution these early pioneers of independent telephony made in the development of communications, for the most part, in the smaller towns and rural areas of this country. But for their efforts nation-wide telephone availability would have been delayed for many years. These companies formed the backbone of the independent segment of the telephone industry. They filled a vital

*For additional personal note, see "Pages with the Editors."

need in the economic development of almost two-thirds of the area of the United States, and many of them continue today to carry on the best traditions of our business.

THE period from 1920 to 1934 was a most difficult one for independent telephone companies. They were caught between the relentless jaws of rising operating costs and a declining economy. A large proportion of the telephone companies comprising the independent segment lost a sizable part of their connected load, and a substantial number of companies, particularly the farmer-owned or switcher companies, discontinued service. At the end of 1934 the number of independent telephone companies, including switchers, declined to 6,700, and the number of their subscribers dropped to 3,490,852 or just over 30 per cent. The largest losses were in the rural areas where farmers' income was low and ready money was at a premium.

Remarkable progress has been made, particularly in the last ten years, in the reestablishment of telephone service in the rural areas where the previous losses were greatest. However, the post-World War II era has brought ever-increasing problems to independent telephone companies. And in general the smaller the company, the larger its problems have become. It is my opinion that this situation will become much more acute in the years immediately ahead.

The principal problems confronting small telephone companies arise from vastly changing conditions that have occurred over the last decade. These changes are both technical and economic. They are the problems most difficult for small independents to solve.

REQUIREMENTS for satisfactory and acceptable telephone service have undergone a fundamental change in the last ten years. Telephone service is no longer chiefly local exchange service—it has become nation-wide to a greater degree with each succeeding year. Telephone subscribers do not remain in their own local communities these days. They travel in ever-increasing areas. As a result local telephone service must be equal in character to that of the larger towns and cities. This requires modern automatic or dial local exchange service, regardless of ownership of the telephone exchange.

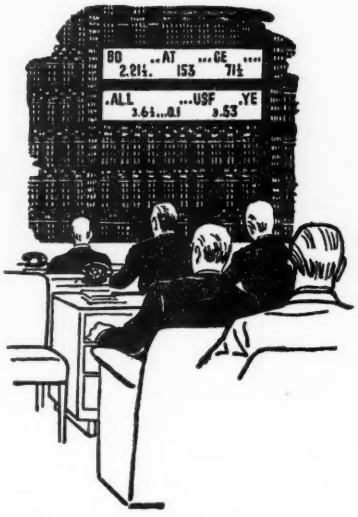
Dial-operated telephones meet present local service requirements, but this alone will not suffice for long. Small companies must anticipate an ever-increasing pressure to provide the central office exchange equipment necessary for integrating their exchange with nation-wide direct distance dialing, and sooner than they think with subscriber direct distance dialing.

Subscriber toll dialing brings a requirement for a more liberal quantity of long-distance circuits in order to provide an acceptable grade of toll service. The increased toll channels will in most cases be provided by electronic equipment rather than through the stringing of open copper wire circuits. Multichannel carrier and microwave provide groups of toll circuits at a cost far below that of toll circuits secured with wire or toll cables.

These are some of the more important changed requirements that face every telephone company. They are vastly different from grounded line magneto service in their technical aspects. The majority of the small companies find it difficult, if not impossible, to provide qualified and competent personnel to meet the technical re-

Rising Cost of Telephone Plant

"THE capital expenditure for modern telephone plant is three to four times the cost of most existing manual telephone systems, and the cost per station of line extensions continues to increase each year. Ten-party rural line service must soon be upgraded to five-party service, requiring tremendous additional capital expenditure. The small telephone company is faced with the problem of securing the large amount of capital required to modernize and extend its plant."



quirements of this changed concept of subscriber nation-wide telephone service.

THE installation of a dial local exchange by a small independent company generally does not pose too much of a problem, although adequate future maintenance may in many cases become difficult. But when the small single exchange company goes dial, it must of necessity make arrangements with another company or exchange to handle its subscribers' toll calls and CDO services. Single exchanges do not have the opportunity of concentrating their long-distance, information, trouble reporting, and other CDO services at a toll center exchange that provides these functions for a group of several unattended dial exchanges.

The capital expenditure for modern telephone plant is three to four times the cost of most existing manual telephone systems, and the cost per station of line extensions continues to increase each year. Ten-party rural line service must soon be upgraded to five-party service, requiring tremendous additional capital expenditure. The small telephone company is faced with the problem of securing the large amount of capital required to modernize and extend its plant.

It is becoming increasingly apparent that single exchange companies with less than 500 to 750 stations are not large enough to be economically sufficient operating units. They will find it increasingly difficult to attract competent business management or to pay qualified technical personnel for tomorrow's telephone requirements. A telephone company with less than 750 stations that experiences difficulty in securing proper technical help and management, compounds the difficulty in

securing adequate finances. Like a dog chasing its own tail—it's a vicious circle. The problems may be deferred—they can be avoided perhaps for a period of years in certain sections of the country—but they must be faced sooner or later, and in many instances it will be sooner.

THE REA, with all of its new dial unattended exchanges, has already found out some of these difficulties. True, capital is not an immediate problem for the telephone co-ops. You and I as taxpayers are furnishing that through Washington, less a heavy brokerage fee. *Co-op borrowers are, however, learning that many changes of less than 750 stations are having difficulty in earning enough to set up an adequate allowance for depreciation and pay the annual amortization of their loan, together with the 2 per cent interest.* REA co-ops are finding it extremely difficult to secure and retain sufficient competent personnel to properly routine and maintain their dial exchanges.

This is one of the reasons why REA is expending so much effort in making additional loans to original co-op borrowers in order that they can purchase and add other adjacent telephone exchanges and subscribers to their original property. That seems to be the only possibility for them to meet their problems, and over the years ahead the high per station capital investment of many telephone co-ops and the increasing expenses of technical personnel will take their inevitable toll.

There are, however, a number of positive and constructive steps that the small single exchange telephone companies can take before it is too late. Several small companies in a contiguous area can join together to form a unit of sufficient size to be economically feasible. They must swallow their pride of individuality and enter into a merger in which each company and its stockholders take stock, in a new and larger company, in proportion to the present value of their separate telephone plants. Their stock in a larger company will be of greater value, and they will still be in the independent telephone business. Very often out of several small companies, the manager of one of them has the ability and qualifications to successfully operate a company of several exchanges. If no such person is available, the larger company will hold forth a greater opportunity and a worth-while challenge to a competent prospective manager.

THE merger of several single exchanges into one company with from 1,000 to 2,500 stations will have substantial credit possibilities. It will constitute a company with an improved future, and much of the capital required can generally be raised through sale of preferred or common stock to the original stockholders of the exchanges or to the telephone subscribers themselves. Such a company is large enough to sell first mortgage bonds in amounts of $100,000 or more. It will be able to employ and adequately compensate a trained automatic equipment maintenance man who can spend his time between a number of small dial exchanges. A cable splicer and cable truck will be justified on a permanent basis. There will be economies in the use of a construction truck and a four- or five-man gang, in addition to two or more inspectors or installers.

In many cases a merger of a number of single exchanges into one company will provide sufficient toll and CDO services

to justify concentrating these services at one of the exchanges where a toll switchboard can be maintained. The personnel at such an exchange can perform information services, take trouble reports, and perform the commercial functions, including billing and collecting, for all exchanges of the larger merged company. The economies in operation and the possibilities of future growth and stability are substantial indeed to those small exchanges that will take advantage of them.

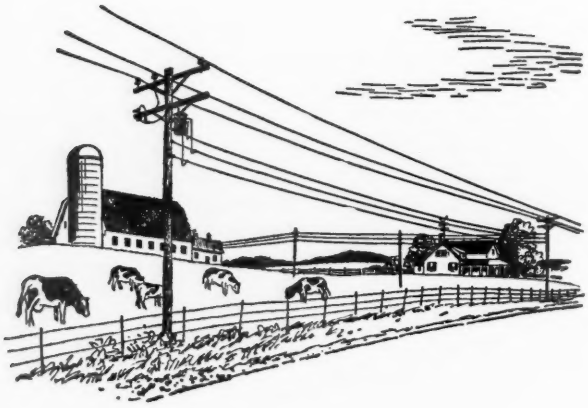
As centers of population continue to grow, most of the increase will be at the perimeter, spilling out into widening circles. This tendency has already brought a demand for extended area service between the small exchange and its trading center or its community of interest. The trend in this direction seems sure to increase. The combining together into one company of a number of single exchanges and the installation of unattended dial central offices, with an agreement for EAS to the larger exchange, at exchange rates that reflect the increase in local calling area, is entirely feasible and can be quite profitable.

There is, of course, always the opportunity for the small exchange to sell out to a larger company or, in certain distress cases, to an associated Bell company, as many have done over the past few years. Our industry has experienced a satisfactory growth in number of telephones—at the end of 1955 there were 8,461,000 independent telephones in service. This represents an increase of almost 140 per cent from the low of 1934. At the same time there has been a large decrease in the number of companies. The 9,200 independent companies in 1920 has been reduced to 4,714 at the end of last year. Most of the decrease in number of companies has been due to purchases of property by the larger operating companies. Small single exchange companies that continue to operate on a status quo basis, are the best prospects for purchase by a larger company.

This need not necessarily be so. Small telephone companies must realize before it is too late that the tremendous progress of the communications art and the demands of the public require that they combine to secure money, management, and technical personnel with the ability to keep up with the pace which is an increasingly fast, difficult, and technically complex one.

"Behind the surface recognition of business and its achievements there is still a mass of misconception about how business really operates, what the true motives of businessmen actually are, and a failure to grasp the essential relationship of business to the other parts of our society. This is an unfortunate situation. All parts of American life depend for their well-being and growth upon a similar state of good health among the other parts. Yet, the sort of misunderstanding now apparent where American business is concerned, presents a very real danger that business could well be so shackled that it no longer would be able to make an effective contribution to our national welfare."

—M. J. Rathbone,
President, Standard Oil Company of New Jersey.



The Rural Telephone Loan Program

Here is an up-to-date survey of the successes and accomplishments of the rural telephone loan program of the Rural Electrification Administration.

An REA staff article*

A LOOK at the rural telephone loan program of the Rural Electrification Administration shows the government and industry working together to get a job done. The job in this case is the improvement and extension of telephone service to farmers and other people in rural areas of our country.

Rural telephone service progressed from the turn of the century until just after World War I, and then went into a slow decline. Farms with telephones actually dropped from 38.7 per cent in 1920 to 25 per cent in 1940, according to data from the U. S. Census of Agriculture. Much of the decline in farm service occurred during a period when the Bell companies and larger independents were expanding and improving service in urban areas.

POPULARITY of the telephone during the early 1900's, together with expiration of the original patents, led to the formation of many thousands of small telephone companies and farmer-owned mutual associations in small towns and along country roads. The great majority of these organizations were never incorporated, maintained no capital, and operated without the management controls, accounting records, and maintenance schedules which characterize so much of the communications industry today. Many were simply informal groups of farmers who bought their own telephone instruments, built the

*Especially prepared for the exclusive use of PUBLIC UTILITIES FORTNIGHTLY.

line themselves, and paid a rental fee for switching service into the neighboring town.

These early telephones were a great thing for the farming communities, and the efforts of the small independent companies and co-operative associations to maintain service were heroic. After two or three decades, however, switchboards and station equipment wore out, lines fell to the ground when the poles rotted away and were in some cases restrung on fence posts or trees. Without capital for replacement, with equity eaten away by obsolescence, and with ownership dissipated, many systems were abandoned. Service in others deteriorated under patch-work repairs and poor maintenance.

The drop in farm income during the early 1930's cut thousands of farmers from existing telephone lines. Rural electrification, in the late 1930's, was the final blow to the old, ground-return telephone systems. Only those systems which had metallic or paired wires could escape the interference set up by the electric power lines which laced a network through the farming areas.

At the end of 1945 about one farm in three had telephone service. A large proportion of the service was of poor quality. The percentage of farms having service ranged from 3.7 per cent in Mississippi to 79.3 per cent in Iowa. The need for expanding and improving rural telephone service was apparent, but few of the smaller companies had enough capital to undertake the job.

A finance task force of the United States Independent Telephone Association reported at this time that "the problem of financing for the small telephone company to provide funds necessary for plant replacement and improved equipment is one of major importance to the independent industry." The Independent Telephone Institute, Inc., said in a pamphlet, entitled "The Farm Telephone Story":

> The vital question is that of how the small independent companies are going to get the money with which to do their part of the job. . . . There are some 6,100 independent companies smaller than class B (less than $50,000 annual gross operating revenue); they operate about 8,500 telephone exchanges. Many of them will need financing for their coming capital needs.
>
> Included in these are some 5,500 small companies operating about 6,500 telephone exchanges of fewer than 500 telephones each. . . . These small exchanges are right out in the middle of where the farms are.

It was in response to this situation that the 81st Congress amended the Rural Electrification Act to authorize long-term, low-interest credit for telephone organizations interested in improving and extending service in rural areas.

The Rural Electrification Administration made its first loan in February, 1950, to the Florala Telephone Company, of Florala, Alabama. In the six and one-half years since the beginning of the rural telephone loan program, REA has loaned $317,123,542 to 473 telephone borrowers. These are 35-year loans at 2 per cent interest. Federal financing is now extended at a rate of about $80,000,000 a year.

Will this money be repaid? An indication may be found in the much older and

larger rural electrification loan program. Of 1,078 borrowers, only 10 are more than thirty days in arrears on scheduled payment of principal and interest. The total amount in arrears—$224,469.67—is less than one-hundredth of one per cent of the amount advanced. These were 100 per cent loans secured by the facilities the borrowed money made possible.

In the telephone industry operating conditions are quite different. Margins are extremely thin in rural areas. Increased use of service facilities does not lower the unit cost as in electric power distribution. REA requires equity averaging from 10 to 15 per cent as security from telephone borrowers. Twenty-five borrowers—about half of them in drought areas — are in arrears for more than thirty days on debt interest payments totaling $559,183.19.

A provision of the Rural Electrification Act specifies that no loan shall be made "unless the Administrator finds and certifies that in his judgment the security therefor is reasonably adequate and such loan will be repaid within the time agreed."

The relatively narrow earning margins of most independent companies accent the desirability of long-term, low-interest financing.

REA borrowers may repay their loans in less than thirty-five years, if they desire, without prepayment premiums or penalties of any kind. A deferment period up to three years allows borrowers to place their new and improved services in revenue-producing status before the onset of debt service.

Owners of independent companies and co-operatives do not want to involve themselves in financial arrangements that would destroy their control and management of their organizations and systems. Except for limited services provided by REA in the interest of loan security, borrowers assume full responsibility for the planning and development of their financing program. All engineering, accounting, and legal expenses are negotiated and paid directly by the borrower. They are thus at all times in complete control of the overhead that goes into the development of an REA loan.

REA loans are made on the basis of complete and accurate subscriber surveys, sound engineering plans, and careful cost estimates. This assures that the use of public funds for loans is justified and that funds are used to carry out the intended program.

REA financing is not allowed to duplicate adequate services within the area of

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another company, and REA will not consider a loan for crowding out an adjoining or neighboring company. All REA borrowers must have clear access to the service areas which they propose to serve. Loans are subject to the approvals and regulations of the public service regulatory bodies having jurisdiction within the respective states.

The Administrator must be able to certify that the primary purpose of each loan is to serve rural territory, defined as any area except towns of 1,500 or more population. Larger towns may be served through REA financing only if the service is incidental and necessary to the provision of service in surrounding rural areas.

In establishing the rural telephone program, the Congress indicated that borrowers must be willing to serve the less profitable areas along with the better portions as long as it is practical and economically feasible to do so. The policy of area coverage to the widest practical extent is an assurance against leaving unserved pockets.

Some loan provisions are established by law in the Rural Electrification Act as amended, but other loan conditions are established by the Administrator and may be modified as the need is recognized. This gives REA flexibility in meeting the varying needs of the telephone organizations serving rural territories.

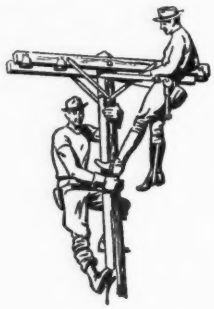
For example, there was a tendency in the early days of the telephone loan program to insist that a borrower improve all of its system. This requirement has been changed to permit the financing of individual exchanges or sections of a borrower's system. Those companies that prefer to finance on an exchange basis now may do so, provided each loan is economically sound. The mortgage in such cases would still cover all facilities of the borrower's system.

In the beginning of the telephone program, REA's experience was limited to rural electric systems and that gleaned from studying financing offered to telephone companies by banks, insurance companies, and equipment manufacturers. Experienced telephone personnel recruited to the REA staff brought with them technical knowledge of the industry and familiarity with its financing needs. Early procedures underwent substantial changes to speed up REA's processing of loan requests and to take into consideration the low equity and other handicaps faced by the very small rural applicants.

REA sought the opinions of leaders and technicians in both the Bell companies and the independents in testing its lending procedures. In 1954 a group of consultants from various segments of the industry was asked by REA to examine the rural telephone program and to make recommendations for its maximum usefulness in getting modern telephone service onto the farms.

The views of these men were taken into consideration in developing more flexibility in REA's engineering requirements, in relaxing controls on management, in lowering equity, and in offering more detailed information to the telephone industry.

These consultants conducted a survey last spring, with the assistance of REA and the independent industry. A questionnaire on the rural telephone program sent to 4,939 independent telephone companies brought returns from about 23 per cent.



Progress of the REA Phone Loan Program

"REA estimates that about 235,000 of the subscribers to be served as a result of REA financing are now connected and getting the new service. To serve these subscribers, 227 telephone companies and co-operatives already have cut over a total of 846 new dial exchanges. REA borrowers have actually completed construction on 72,000 miles of line and have 29,000 miles of line under construction. For engineering, construction, and other expenditures to date, borrowers have drawn down from REA $154,000,000, or half of the amount loaned. REA advances money only as borrowers need it and request it. Interest is paid only on money actually advanced."

Fifty-seven per cent of the returns were from stock corporations, 16 per cent were from individual proprietors, four per cent from partnerships, 12 per cent from mutuals, and 10 per cent from co-operatives.

Together the 1,126 systems reporting operated more than 4,000 exchanges and served nearly 4,000,000 subscribers. Multiparty rural stations made up about 890,000 of the total served.

Of those who replied 72 per cent indicated they could use borrowed capital to good advantage to improve and expand their systems. Less than half (46 per cent) said that they could borrow sufficient funds under satisfactory terms and conditions from private sources to do the things necessary to improve and expand their systems. Twenty-three per cent of those who replied are either REA borrowers or have submitted applications for REA loans.

Suggestions for improving the REA telephone loan program were requested in the questionnaires, and most of the replies carried comments, often on several points. Eight per cent thought the cost of preloan engineering required by REA too expensive. Another eight per cent said that rigid specifications and enginering expense run plant costs too high. Seven per cent stated that smaller loans were preferred for adding to and improving exist-

ing plant. Five per cent thought REA assumes too much control of its borrowers. Four per cent complained that obtaining a loan requires too much time. Three per cent thought REA's equity requirements too difficult to meet, and two per cent said loan requirements in general were too stringent.

On the other side of the coin, a substantial number wrote in compliments for REA and 5 per cent sent in their names and asked for more information on how to get an REA loan.

THE extent to which early suspicions and antagonisms to REA financing have died away is clearly shown not only by the large number of companies which have obtained loans or are in the process of getting them from REA, but by participation of REA borrowers in industry associations.

The presidents or managers of 74 REA borrowers hold positions as officers or directors in 25 of the 34 state or regional telephone associations which represent the independent industry.

In most sections of the country representatives of the Bell companies and of the independents' associations have worked closely with REA and with companies and co-operatives which are using REA loan funds in developing modern telephone service for rural areas. This has taken such forms as suggestions for improving the loans program, interest in development of additional sources of credit outside of REA, standardized agreements for extended area service, allocation of toll revenues, and operator services, sponsorship of conferences and training courses, and aid in time of emergencies. State regulatory commissions, also, have with few exceptions co-operated with borrowers in such matters as permission to borrow REA funds and issue securities, assignment of territory, and rate increases. Commissions generally recognize the great need for carrying into rural districts the same quality service which city subscribers have.

Manufacturers and suppliers, too, are co-operating in the spread of rural telephony by developing line and other materials especially adapted to rural telephony's need for low installation costs, and to special maintenance and operations problems of farm service. Standardization of inside and outside plant, urged by REA as a means of cutting costs and shortening delivery time for small exchanges, is now recognized by manufacturers as both desirable and feasible.

The result of this many-fronted effort has been the greatest period of rural development in the history of the telephone industry.

The per cent of farms with telephones increased from 38.2 in 1950 to 48.8 in 1954, according to the U. S. Census of Agriculture, an increase of more than 10 percentage points in less than five years.

A SURVEY taken by the Agricultural Marketing Service in July, 1955, estimated that about 45 per cent of the telephones in farm homes were served by companies in the Bell system. Independent companies served another 45 per cent, and the remaining 10 per cent obtained service through mutuals and co-operatives. This same report showed improvement in the quality of rural service. About 51 per cent of farmers with telephones had dial service as of July, 1955, compared to 45 per cent the year before.

REA acknowledges that its loans for modern dial service provide but a small part of the increase, but it is generally evident that the government lending program provided a stimulus to more and better service in farm areas by the existing systems.

Loans made to independent telephone companies, mutuals, and co-ops by REA through the end of July, 1956, will be used to provide dial service to 706,000 subscribers, practically all of them on farms and ranches or in and around small towns and rural communities of less than 1,500 population. About half of these, 348,000, will be new subscribers, getting telephone service for the first time. Just over half, 358,000, will benefit greatly by rehabilitation of the systems now serving them.

THE improvements being carried out with the aid of long-term REA financing are considerable. Magneto and common battery switchboards are giving way to unattended dial exchanges. "Ground-return" systems and wire haphazardly hung on trees, old poles, and fences are being ripped out and replaced by open wire construction meeting REA specifications that will guarantee good fidelity in transmission and a minimum of interruptions. The new systems have selective ringing and are limited in most cases to eight parties on rural lines. Consolidations and the expansion of service areas sometimes bring about more extended area service for subscribers — enlarging the neighborhood within which calls can be made free of toll charges.

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The use to which borrowers put REA financing may be of interest. During the year ended June 30, 1956, there were 208

¶ "LIKE *most other industries in an expanding economy, telephone companies must have complete and continuous financing if they are going to be able to survive. Obviously, such financing must be provided within their means and their abilities to meet debt service costs. REA has led the way in providing adequate financing. Even though other credit sources are now being opened to well-established companies, there still remain many hundreds of organizations which cannot meet the higher equity, the shorter repayment periods, the heavier interest, and other requirements of ordinary commercial credit.*"

telephone loans amounting to $80,980,000. The percentage distribution of funds required was figured as follows:

Acquisitions	5.2%
Improvements to existing plant	45.7%
New Construction	41.9%
Refinancing	5.3%
Operations	1.6%
Other	0.3%

The average amount loaned per proposed subscriber came to $433. There was an average of 3.9 subscribers per route mile.

Of serious concern to REA since the beginning of the program has been the investment per station. In most cases the system constructed by REA borrowers is all or nearly all new plant. This means that high current prices apply, without the dilution of prewar priced construction. Irrespective of other factors, then, the per station investment of REA borrowers would appear relatively high compared to industry-wide averages. Thin territory and rugged terrain also are characteristic of rural telephone service and tend to increase the costs of outside plant in relation to national averages.

REA maintains continuing study of engineering, construction, and operating costs, for these control the feasibility of the loans which the federal agency makes and determine in the long run the service rates applied in computing the farmer's telephone bill.

Engineers on the staff at REA work closely with manufacturers, the Bell Laboratories, and others in the development and application of materials, design, methods, and equipment which will produce equal or improved rural service at lower cost.

Just this summer REA made developmental contracts with private firms for radiotelephone equipment which will permit the isolated rancher or a trucker in farm country to dial his telephone and be connected automatically through the unattended dial exchange. Technically, there is no reason why this cannot be done—without connecting lines and without the services of an operator. REA will arrange to have the experimental equipment installed and field-tested on the systems of several borrowers.

Plastic-coated wire, the use of longer spans, vibration dampers, and buried lines are some of the innovations being tried out on systems of REA borrowers in various parts of the country.

REA telephone borrowers take advantage of joint-use contracts for the use of pole lines constructed by rural electric cooperatives and other utilities in reaching distant or widely spaced groups of subscribers, with a minimum of cost in line construction. Similar savings are obtained by the use of subscriber carrier equipment, which permits additional communications channels to be stacked on top of those already provided by existing pairs of telephone wires.

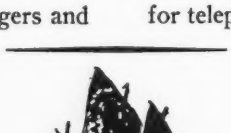
Sound engineering and up-to-standard construction are essential for quality telephone service. So, too, are good accounting practices, efficient management, and adequate rates necessary to maintain modern telephony, regardless of the source of the financing. Today, independent companies are tightening up their organizations, examining property titles, franchises, and certificates of convenience and necessity that have been neglected far too long in far too many cases. Medium-sized and even small telephone companies

are turning to such management aids as market surveys, cost estimates, employee training, and public relations programs as prerequisites for satisfactory operating margins and for an assured place in the economic life of the rural community.

THESE are part of the great change now taking place in the field of independent telephony. Small, family-run lines operating magneto service during the daytime and evening hours are giving way to larger, better integrated systems which offer automatic dial service around the clock. The price is higher, but the service is better and the farmer is willing to pay the increase.

Probably nobody knows for sure just how fast the little companies are disappearing, but a recent industry estimate showed a drop from 6,082 independent companies in 1945 to 4,700 today. Where have they gone? Well, some just go out of business, abandoning the worn-out switchboard and fallen lines. Many have been bought up by larger companies. The count is further reduced by mergers and amalgamations of one kind or another. A number of REA loans have been made to strong combinations of from two to a dozen little companies and mutuals which have pooled farm lines and town switchboards to give better service on an area-wide basis.

LIKE most other industries in an expanding economy, telephone companies must have complete and continuous financing if they are going to be able to survive. Obviously, such financing must be provided within their means and their abilities to meet debt service costs. REA has led the way in providing adequate financing. Even though other credit sources are now being opened to well-established companies, there still remain many hundreds of organizations which cannot meet the higher equity, the shorter repayment periods, the heavier interest, and other requirements of ordinary commercial credit. For them REA loans offer the opportunity to stay in business, convert to dial, and extend service out to the farms which are still waiting for telephones.

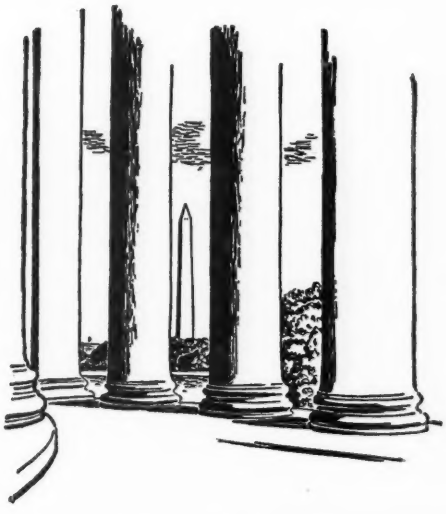


A Passing Nightmarish Thought

"AT&T, largest phone company on earth, has a new president, Frederick R. Kappel, and we can't help wondering how it feels to get news you have been picked to head a corporation responsible for 48,000,000 telephones. Every telephone subscriber, however good the service, and regardless of the company, thinks it his privilege to complain about phone service. Taking a minimum of only one squawk a week, this means 250,000,000 squawks per year. The kicks about the impolite hello girls, wrong numbers, and the 30 cent overcharge never reach the president, but think of all the others that do."

—H. I. PHILLIPS,
Newspaper columnist.

Washington and the Utilities



Monopoly and TV

THE House subcommittee investigating alleged monopolistic abuses seems to have switched its attention in the communications field from the recent consent decree settling the government's suit against the American Telephone and Telegraph Company and Western Electric to television. On this point, at least, the subcommittee is apparently striking a more responsive chord with the Justice Department's antitrust division.

A top Justice Department official said recently there is "striking similarity" between the television industry's present development and that of the old motion picture monopolies broken up by government action eight years ago. Victor R. Hansen, Assistant Attorney General for antitrust matters, made the comparison in testimony for the House Antitrust Subcommittee investigating TV operations.

Hansen disclosed that a department inquiry into TV network activities has now been broadened to include "every relevant facet of network operations," and that FBI agents are helping attorneys in the antitrust division to conduct the investigation. Hansen said "evidence thus far suggests the striking similarity between TV industry structure and the movie pattern condemned" by the Supreme Court in a 1948 decision. In that decision the court upheld an antitrust action against Paramount Pictures and seven other major movie producers.

The antitrust chief said the department's inquiry now embraces the pricing of TV shows, time rates and network contracts, show production, and arranging the use of entertainment talent. "Our investigation of network control over talent and program production, though not complete, suggests that the principal networks beyond doubt have power to dominate if not control major aspects of television," he said.

"This power, it seems clear, spills over simple distribution of entertainment to engulf production of programs, building of scenery, and tie-ups of talent. Against this background our inquiry now focuses on whether that power has been, or will likely be, used to exclude competition."

Co-op Sellouts

THERE seems to be continued agitation among some REA co-opera-

tives to sell out to business-managed utility companies.

The number of actual sellouts by co-operatives has been very small so far, but the number is picking up. Until 1956 there were only two such sales (co-op sales to other co-ops or government power agencies not included). In 1956 there have been two additional co-op sellouts in the Pacific Northwest, and two more likely in the near future (Cody, Wyoming, and Guin, Alabama).

In the past both REA and the National Rural Electric Co-operative Association have been able to put down such agitation by sending out "flying squads" of important personalities from Washington to talk the dissatisfied co-op membership out of voting approval for proposed sales. As it generally requires a two-thirds vote of approval of co-op membership, these tactics have usually been successful.

THE general manager of the NRECA, Clyde T. Ellis, recently denounced public utility companies for tempting co-ops with such proposals. Addressing a regional NRECA meeting in Detroit (including REA co-op representatives from Michigan, Ohio, Indiana, and West Virginia), Ellis charged "the private utilities seek to take over electric co-ops at a fraction of their value." It is noteworthy that estimates of the "value" of such co-op properties for sale purposes seem to be based on current or reproduction figures, rather than at original cost or prudent investment.

Ellis told his Detroit audience:

> We must sell our members on the value of retaining ownership in their own utilities. They must be reminded that if we return to a system where only private utilities offer service, they can neglect rural people again and go after higher rates.

Ellis added that cheap federal power is important as a competitive yardstick because half of the co-ops' electric current must be purchased from private companies "who would like to take over our business."

FPC Hears about Gas Fuel Rivalry

PIPING natural gas into the Carolina tidewater country will displace 1,971,118 tons of coal which otherwise would be produced in southern states. This was the burden of testimony before the FPC as presented by the bituminous coal mining industry. Spokesmen for the coal industry told the commission that more than $10,000,000 in revenue over the next three years and the jobs of some 335 full-time miners were at stake.

Another witness said the pipelines would cause railroads to lose $2,069,299 in coal-hauling revenue the first three years of the proposed gas operation. Transcontinental Gas Pipe Line Corporation is proposing to boost natural gas deliveries in the Carolinas by 60,000 Mcf daily. Three companies seek to distribute the gas from Transcontinental's lines to 40 communities: Carolina Natural Gas Company, Carolina Pipeline Company, and Trans-Carolina Pipeline Corporation.

Another proposed gas-coal competitive situation has caused controversy in the Scranton-Wilkes-Barre, Pennsylvania, region. Scranton-Springbrook Water Service Company is seeking FPC permission to purchase natural gas from the Tennessee Gas Transmission Company to supplement its existing manufactured gas supplies. A United Mine Workers Union official told FPC that introduction of natural gas would aggravate the unemployment situation in the anthracite coal industry. The company contends that

natural gas is needed in the area to attract new industry.

FPC heard conflicting arguments on a different kind of competitive controversy. This involved oil transportation and stems from the proposed reconversion of a part of the "Little Inch" line to oil products. Texas Eastern Transmission Corporation wants to change the line back to oil transportation between Baytown, Texas, and Moundsville, West Virginia. It also proposes to build more than $70,000,000 in substitute natural gas pipeline facilities. Counsel for river barge companies contended that the reconversion to petroleum would result in increased natural gas rates. The Texas Eastern counsel argued that the project would reduce the company's cost of service, which is a factor in cost. Gas utilities supported Texas Eastern.

*

The Atom and Politics

EVEN though the atom is neither Democratic nor Republican, as Representative W. Sterling Cole (Republican, New York) lately remarked, the way in which the nation is to develop atomic energy could be determined by the coming election. True, the election's course seems sure to be determined, not by the party programs' opposed declarations on this issue, but by other factors remote from nuclear science. Yet, once installed, as a majority in the new Congress, Republicans as a group or Democrats as a group quite probably will follow the lines of their predecessors in the present 84th Congress.

There are a great many differences of opinion about the way in which the United States should develop the peaceful atom, and also about the qualifications of leading personalities in that enterprise, notably Lewis L. Strauss, chairman of the Atomic Energy Commission. The most profound difference, chiefly responsible for Congress' recent refusal to pass either of two constructive measures dealing with fundamentals, is that which pits public power against private power advocates. And that issue is certain to rise in the new Congress, when those same constructive measures, or something like them, again come up for a hearing. Because of the political issue, there continues a roadblock preventing altogether an economic advance of tremendous importance.

There is involved much more than the question of how soon the peaceful atom will be used for the creation of energy for commercial distribution. Atomic power of that sort, on any large scale, is not likely in this country for years, so expensive is the operation. Britain, where there is much less of a cost differential between atomic power and conventional power, is certain to have its large-scale plants in operation earlier than ours.

A LARGER need is for massive research and development, and in this area so respected and impartial an authority as Henry D. Smyth, member of the first Atomic Energy Commission and now at Princeton, charges that the United States is lagging badly.

A somewhat different approach is taken by Eugene M. Zuckert, another former AEC member and former Assistant Secretary of the Air Force. Zuckert, now a Washington, D. C., atomic energy consultant, says that to the degree that industry is informed and co-operates with government, it will progress and prosper. Zuckert bases his idea upon the belief that atomic age progress is going to take more government money, government administration and technical direction, government-financed research, and a firmly developed pattern of government regulation.



Telephone and Telegraph

Kappel New AT&T President

ON September 19th the directors of the American Telephone and Telegraph Company announced that Cleo F. Craig, president of the AT&T, had been elected chairman of AT&T, and Frederick R. Kappel, president of AT&T's manufacturing arm, Western Electric, had been named the ninth president of the parent company.

Fred Kappel, aged fifty-four, joined AT&T in 1924 as a telephone wire stringer and pole digger with the Northwestern Bell Telephone Company. He rose through a variety of engineering and operating jobs to become Northwestern's operations vice president in 1942. In 1949, he was called to AT&T headquarters in New York city and elected vice president in charge of the company's Long Lines Department. He later became AT&T's operations and engineering vice president during the company's postwar expansion.

Kappel became president of Western Electric in 1951 when its sales of telephone and other communications equipment to AT&T, the U. S. government, and other independent phone companies were $1,526,231,000. He has watched Western's sales of more than 50,000 individual items, ranging from phones and central telephone office dial equipment to cables and electronic brains for the military guided missile, grow to more than $2 billion this year. Because Western Electric owns half of the Bell Telephone Laboratories, along with AT&T itself, Mr. Kappel has been close to some of the most important developments in communications, including direct distance dialing and the picture telephone.

As president of AT&T, Mr. Kappel replaced 63-year-old Cleo F. Craig, who became president in 1951 following the death of Leroy A. Wilson, who succeeded Walter S. Gifford in 1948. Mr. Craig stepped up to AT&T's chairman of the board, a post that has not been occupied since Mr. Gifford's day. Under AT&T's present arrangement, executives must retire at age sixty-five, which means Mr. Craig might step down by about mid-1958.

Although Mr. Craig, Mr. Wilson, and Mr. Gifford had considerable operating experience, Mr. Kappel, on the other hand, has been primarily an "operations man," but with a well-rounded experience in technical research and development. He is a graduate of the University of Minnesota, from which he received the "outstanding achievement award" in 1954. He is a fellow of the American Institute of Electrical Engineers.

Transatlantic Cable Opens

THE world's first transoceanic telephone cable system was opened on September 25th when Cleo F. Craig, chairman of the American Telelphone and Telegraph Company, picked up his phone in New York and started chatting with Dr. Charles Hill, Britain's Postmaster General, in London.

The new undersea cable, an AT&T spokesman said, can carry up to 36 conversations simultaneously. Seven of these circuits link Montreal and London, while 29 will hook up New York and the British capital.

Telephone conversations between the United States and Britain were previously carried by 15 radio circuits, which were seriously disturbed by everything from storms at sea to sun spots. The new cable, the AT&T spokesman noted, will eliminate all such interference.

Craig's call actually inaugurated the world's first transoceanic telephone cable system in telephone-telegraph history. Transoceanic cables in the past have been used for teletyped messages.

Construction of the new cable phone link was undertaken two years ago by AT&T, the British Post Office, and Canadian Overseas Telecommunication Corporation. The principal underwater section crosses the Atlantic between Clarenville, Newfoundland, and Oban, Scotland. From Oban, new trunk lines link the system to switchboard in London. On this continent, newly constructed land and water sections bring the transatlantic circuits to Portland, Maine, and to Montreal, where they connect to the established American and Canadian networks.

The cable system is not only the first of its kind to cross the Atlantic, but the first underwater phone line to span any ocean.

The deep-sea portion of the system was laid under the supervision of the Long Lines Department of AT&T, the long-distance operating unit of the Bell system. Engineers and scientists of Bell Telephone Laboratories designed and tested the system.

The underwater cables that represent the backbone of the system were placed by the cable ship *Monarch,* the largest cable-laying vessel afloat. The 8,050-ton *Monarch,* took a total of seven months to complete laying operations. She worked only in summer, when the turbulent North Atlantic is on its best behavior. At that, she took a battering from hurricane Ione in September, 1955, but finished her job on schedule. While laying, *Monarch* carried as much as 1,300 nautical miles of cable. Her cable-laying speed was about six knots.

Since cables of the design used in the Atlantic section of the system transmit in but one direction, two cables were needed to make a conversation possible. The two cables lie some 20 miles apart on the ocean floor; the southernmost transmitting west to east and the northernmost east to west.

Both cables, which have an average over-all diameter of $1\frac{1}{4}$ inches, were put down in three segments. In June of 1955, 200 miles of the west-to-east cable was placed from Clarenville to the edge of the continental shelf.

Toll Ticketing Pays

GENERAL TELEPHONE CORPORATION is beginning to realize important results from toll ticketing equipment manufactured by its Automatic Electric Company subsidiary in Chicago. Toll ticketing is accomplished by highly complex and nearly 100 per cent automatic machines that record completed long-distance telephone calls on punched paper tape, and later convert the tape into customers' monthly phone bills.

General is selling this equipment in increasing amounts to other independent phone companies, but it is also installing it on its own nation-wide system at a decided saving in operating expenses. Nearly 300,000 of General's more than 2,600,000 telephones now have toll ticketing equipment that records nearly 4,000,000 messages per month.

If these phones were not handled automatically, the company says it would have to hire 1,000 new operators representing an extra annual payroll expense of $3,000,000 alone. Within two or three years, General expects to convert a further 300,000 phones to toll ticketing with additional wage savings of "more than $3,000,000 because of increasing labor rates."

Service Speed-up at Phone Headquarters

A NEW system that will permit the switchboards of large corporations or other institutions to handle more calls with fewer operators and at a faster rate than before is under development by the American Telephone and Telegraph Company. Called Direct Inward Dialing (DID), the system was first projected for AT&T's headquarters in New York city as a sort of field test. The company was expected to start the service in New York city on September 24th, in time for calls from stockholders about its stock rights offer.

As an unexpected development, such corporations as General Motors, Du Pont, Southern Pacific, General Electric, Radio Corporation of America, and Bethlehem Steel, have expressed an interest in getting the service for their offices. Boeing Airplane Company, of Seattle, is expected to get the first large DID system outside a telephone company by mid-1957.

DID works by taking an employee's present extension designation and converting it into a regular phone number. Special directories listing the direct numbers of company employees are circulated among salesmen, newspapermen, affiliated companies, and others who call the company frequently. In this way, they can call direct and avoid going through the switchboard, greatly reducing the number of calls switchboard operators have to handle.

Videophone

TRANSCONTINENTAL TV, person-to-person, has been successfully tested by Bell Laboratories, along with the signal system for actuating it and the devices for inhibiting it. So far, other considerations aside, there seems to be no considerable demand for calling persons up to see them talk.

Electronic applications nowadays come so thick and fast it is very difficult to get the attention for a new one that does not fill a clear need.

TV communication of objects, etc., may be a different story. For business purposes, both on closed circuits, short telephone connections, and on much longer transmissions, the "picture that's worth 1,000 words" or that may relay information even words cannot convey, is already "in show business," in one form or another.

Studies reportedly indicate that enough individuals, for private purposes, would like the same sort of visual aid to justify rolling this particular experimental ball along. Will it shorten conversation, though; or will it tend to lengthen it, or put more load on a wire system that must expand constantly to keep ahead of the national conversation load as it is? That remains to be seen.

Financial News and Comment

By OWEN ELY



Amazing Growth of the Telephone Industry

THE postwar decade has seen an amazing development of the telephone industry. Since 1945 the number of telephones in the Bell system has increased about 115 per cent, not far behind the increase in kilowatt-hour output for investor-owned electric utilities. Service has been greatly improved, with over 87 per cent of Bell phones now dial-operated compared with 65 per cent in 1945. During the postwar period AT&T's stockholder list has more than doubled, while (reflecting inflation as well as growth) the plant investment and number of shares of stock have tripled.

The Bell system has invested over $10 billion in new plant since 1945, but the traditional pattern of financing new-money requirements has been maintained. New construction needs have now risen to over $2 billion a year, and the financing program is in high gear. Late last year the parent company sold $637,000,000 convertible debentures, and in July this year $250,000,000 plain debentures. In between it continued to sell stock to employees on a favorable basis, under a long-standing plan. Now it is engaged in selling $575,000,000 of common shares at par to stockholders on a 1-for-10 basis, with resulting valuable rights. Subsidiaries of course have continued to sell debenture bonds from time to time, as well as common stock on a rights basis where there are minority stockholders among the public.

THE Bell system has raised about 70 per cent of its construction funds through sale of new securities, or slightly more than the electric utilities—although industrial companies (with greater plow back of earnings) generally need to raise only one-quarter of their construction cash by sale of securities. During the postwar period AT&T itself has sold nearly $5 billion debentures, of which roughly two-thirds were convertible into stock, but despite conversions (usually speeded by redemption of older issues) parent company debt has increased from $700,000,000 in

DEPARTMENT INDEX

	Page
Amazing Postwar Growth of the Telephone Industry	609
Southern Bell's Adverse Louisiana Decision	611
Chart—AT&T Earned Surplus 1920-55	611
Chart — Monthly Trend of Utility Financing 1954-56	613
Heavy Yield Premiums on Recent Bond Offerings	615
Table—Yield Yardsticks	615
Table—Recent Financial Data on Telephone, Transit, and Water Stocks,	616, 617

1945 to about $2.3 billion currently; subsidiaries' debt has risen from $600,000,000 to about $2.5 billion.

The debt ratio is only about one-third of total capital, a conservative percentage as compared with other types of utilities, but necessary in order to stabilize earnings and maintain the historic $9 dividend—which most stockholders consider virtually as safe as interest on their savings deposits.

Bell Laboratories has been a leader in scientific research (the transistor was one of its discoveries) and Bell subsidiaries aid the government in many defense projects. The largest of these is the arctic radar system (DEW, or Distant Early Warning Line). Bell has also aided SAGE, the proposed continental semi-automatic air-warning and control system which will tie together the whole defense system. Bell Laboratories are also helping track guided missiles over the tropical waters north of the Caribbean. Western Electric has produced NIKE guided missiles to protect American cities, and manages an AEC laboratory to develop atomic weapons.

The great postwar advances have been reflected in higher earnings. American Telephone and Telegraph consolidated share net has increased from $8.78 in 1945 to $12.27 in 1955, or $13.10 based on average shares. However, earned surplus approximates only $20 a share, or a little over two years' dividends; as indicated in the chart on page 611, this is only about half the 1929 level, hence Bell seeks further rate increases to offset inflationary trends in the general economy.

GENERAL TELEPHONE CORPORATION, largest of the independent telephone systems, had about 2,000,000 telephone stations last year in its own subsidiaries, plus some 600,000 more acquired by merger with the Gary system, second largest independent. General's total is thus about 5 per cent of the U. S. aggregate compared with Bell's 85 per cent. The remaining 10 per cent is controlled by some 4,700 independent companies or family-owned concerns, many of them minuscule in size. The larger investor-owned independents are listed in the table on page 617.

GENERAL TELEPHONE'S growth has been considerably more rapid than that of American Telephone since much of the increase has reflected mergers. Its 1955 telephone revenues were $210,000,000 or about 16 times the $13,000,000 of 1937, while Bell revenues of $5.3 billion were about five times as large as in 1937. During the 1950's General has tripled in size. Continued acquisition of smaller systems appears likely, although for the present General is busy digesting the Gary properties and merging them with its own subsidiaries where they operate contiguously. The program should yield economies through reduction of overhead and greater efficiency, particularly through the addition of more accounting machines and the extension of the dial system. General now also controls rapidly growing telephone companies in British Columbia and in the Dominican Republic through Anglo-Canadian Telephone.

In taking over the Gary system, General acquired a large telephone manufacturing company, Automatic Electric, whose operations are currently being conducted in some fourteen buildings in Chicago. A large single-story building in park-like surroundings is now being built near Chicago, where all operations can be concentrated, and this should result in substantial economies. Construction should be completed in less than a year. Gross revenues of manufacturing and sales companies totaled $142,000,000 in 1955.

IN April General Telephone sold $50,000,000 debentures, convertible into stock at 49 initially, and the management does not expect to do any equity financing this year since cash appears adequate to carry it well into 1957. The parent company seems likely to continue its financing in much the same general pattern as Bell, mainly with convertible issues and occasionally with a common stock offering. Stock is also issued on an exchange basis in connection with mergers.

The stock has been selling recently around 41 (range this year 46-38) and pays $1.60 to yield 3.9 per cent compared with 5.2 per cent on AT&T. Earnings are estimated at close to $3 for the calendar year 1956 compared with $2.63 last year, and $1.84 in 1954 after adjusting for the stock dividend. General's pay-out is currently only about 55 per cent compared with 70 per cent for AT&T, but on the other hand payments have increased in each of the past four years along with the sharp increase in earnings; another increase appears indicated if earnings work out as anticipated.

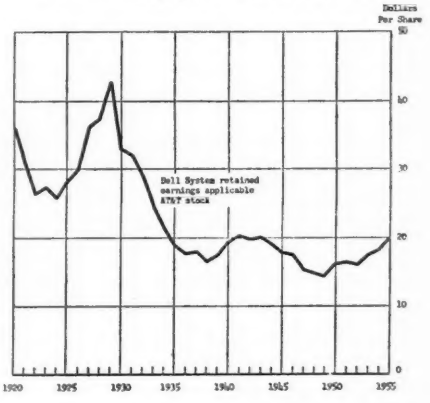
Southern Bell's Adverse Louisiana Decision

THE Bell system had six important rate decisions in 1955 and seven in 1956 (through August), involving subsidiaries in twelve states throughout the country. Most of these decisions were favorable on the whole, those made in 1955 permitting increases of $26,000,000 per annum while an additional $21,000,000 increases became effective between January 1 and September 1, 1956. The twenty months' total approximated 9 per cent of annual Bell system revenues, and in terms of share earnings approximated 50 cents a share, much of which was absorbed by higher costs. The important decisions by the New York State Public Service Commission were reviewed in this department in the August 2nd issue.

One of the most surprising recent decisions was that of the Louisiana Public Service Commission rendered on June 30, 1956, ordering a substantial rate reduction. While the amount of the reduction was not serious to the system as a whole —amounting to only a few cents per share on AT&T stock after tax savings—nevertheless it was a blow to the system because of the possibility that some of the fallacious reasoning of the commission and its experts might influence other regulatory bodies to take similar viewpoints, without checking the accuracy of the arguments advanced.

On December 1, 1954, the commission had ordered Southern Bell Telephone & Telegraph to show cause why its intrastate rates should not be reduced. The company countered with an application for increased rates of $6,600,000, and subsequently sought to increase the amount to $8,800,000. The recent decision reduced intrastate tolls by 20 per cent and specifiied 5-cent charges for local coin-box calls, making a total reduction of $3,900,-

Retained earnings per share of A.T.&T. stock



000. Also, the company's request for reopening of hearings to show later operating results and wage increases was denied.

THE commission declared that procedures used in prior electric and telephone cases were being abandoned in favor of new rate-making principles which closely follow the theories propounded by Arnold Hirsch, chief witness for the staff. Contrary to previous decisions, the commission did not find a rate base, purporting to compute earnings requirements on the portion of the company's invested capital allocable to Louisiana intrastate operations. The order further diverged from past procedures in that no return was allowed on the surplus invested in plant. It was conceded in the order that the allowed earnings would provide a return of only 4.8 per cent on net investment. The decision was based primarily on the assumption of a 45 per cent debt ratio, disallowance of part of the federal income taxes actually paid, and on the finding of only 6.6 per cent as the cost of common stock financing.

In adopting the 45 per cent debt ratio (in place of the 33 per cent ratio held desirable by Bell system management) the commission stated:

> We are of the opinion that the telephone industry, particularly the Bell system, can safely carry as much long-term debt as is characteristic of the electric utility industry.

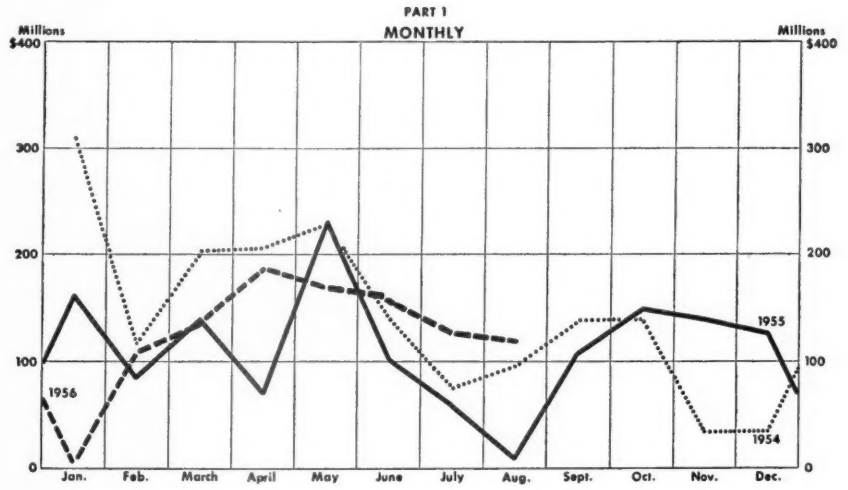
Here again, the commission relied substantially on the theories advanced by its own witness, Hirsch, a Washington consultant.

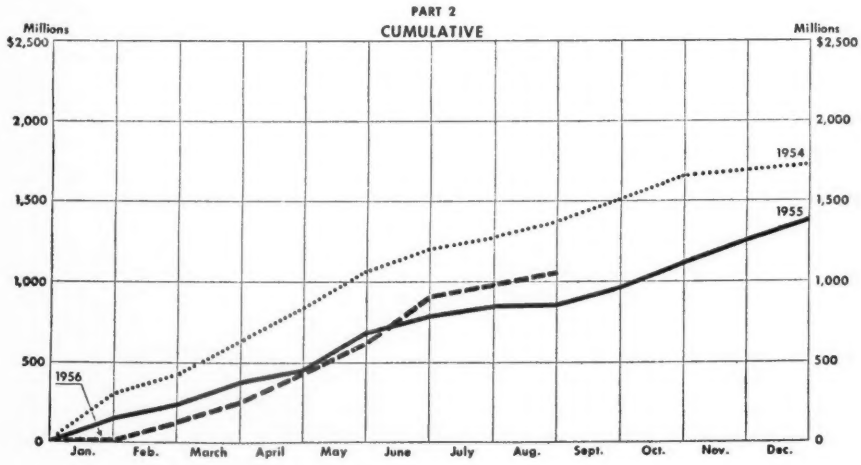
In comparing the electric utility and telephone industries with respect to the element of risk for the investor, Mr. Hirsch admitted that in the event of adverse economic conditions some residential subscribers might seek to downgrade their service to reduce expenses, but he considered that the probability of discontinuing the service would be remote, since the telephone has become "an indispensable part of our social and economic life."

With respect to the electric utility industry, however, he argued that residential consumers would be likely to curtail the use of electricity somewhat, and that (more important) the revenues obtained from commercial and industrial customers who buy about 68.5 per cent of total electric output might show a heavy shrinkage. He also pointed out that industrial companies might realize the possible economy of generating their own electricity, and also mentioned the potential threat of government ownership as a matter of concern to the investor. "In the light of all circumstances," he concluded, "it would seem that the prudent investor would prefer to invest his money in the common stock of the telephone industry and to accept a lower yield than he might demand in the electric utility industry." Hirsch also contended that a number of electric utilities during the 1930's had been unable to pay common stock dividends each year, although the telephone companies in the Bell system paid dividends regularly. Hirsch further stated that Southern Bell had had a more consistent record of net operating income than the three largest electric utilities in its territory, during 1930-40.

THIS brief review does not afford space for any thorough analysis of the lengthy Louisiana decision, but the following points may be of interest: The argument that the electric utility industry is more cyclical and more vulnerable to depressions than the telephone industry seems to indicate an ignorance of historical trends. The number of telephones in the Bell system shrank over 10 per cent during the period 1930-35 and the number

PROGRESS OF NEW MONEY FINANCING
BY UTILITY COMPANIES RENDERING PRINCIPALLY ELECTRIC SERVICE*





* Covers companies included in the calendar with assets over $35,000,000.

Source, Irving Trust Company

of toll messages over 20 per cent, while sales of electricity for investor-owned utilities increased nearly 4 per cent during the same period. During 1929-32 share earnings of American Tel. and Tel. declined 61 per cent, while the net income of investor-owned electric utilities decreased only 14 per cent. The only thing that protected American Tel. and Tel. dividends was the high equity ratio and the parent company's substantial earned surplus—which was larger on a per share basis in 1929 than now. (See chart, page 611.)

There are several reasons for the more cyclical character of the telephone business, as compared with the electrical utilities. In the residential field, there is always the party line as a way of cutting costs; and in the business field telephones in use can quickly be disconnected as industrial employees are furloughed, while the number of long-distance calls may shrink rapidly. The telephone customer has no investment in equipment which must lie idle if service is discontinued. Electrical utilities are favored by the constant development of new appliances and by automation, and their rate structures may contain many protective features.

THE major reason for the greater vulnerability of the telephone industry, however, is the much heavier burden of inflexible labor costs as compared with the electric utilities. In the communications industry wages take nearly half of revenues, as contrasted with about 18 per cent for investor-owned electric utilities. Wage rates are continually increasing every year for all utilities, but Bell's burden is much greater during a depression—it cannot contract its specialized labor force as fast and does not have the fuel savings that go with reduced electrical demand, so that net earnings drop much faster than for the electric utilities.

It is incorrect to state that investors will accept lower yields on telephone stocks than on electric utility stock. American Telephone at present affords a yield of about 5.3 per cent in addition to frequent valuable rights to aid new financing, while the average yield on 24 electric utility common stocks as compiled by Moody's service approximates 4.7 per cent. This is despite the fact that American Telephone's equity ratio is much higher than the average for the electric utilities.

REGARDING the contention that local electric utilities during the 1930's omitted some dividends while Southern Bell did not, it must be remembered that the latter company operated under the "umbrella" of the nation-wide Bell system with its sound financial structure. It seems probable that the local electric utility companies referred to were mainly subsidiaries of holding companies and doubtless suffered from the unsound financial practices of the 1920's with respect to holding company finance. In fact, two of the electric companies used for comparisons by Mr. Hirsch had substantial earnings available for common dividends during the years in question.

The only fair comparison would be between the Bell system and typical large electric utilities not adversely dominated by holding company systems. The dividend records of such utilities were uninterrupted during the depression period, and unbroken records of payments were:

	Dividends Paid Since
Commonwealth Edison	1890
Consolidated Edison	1885
Detroit Edison	1909
Philadelphia Electric	1902
Pacific Gas & Electric	1919
Pacific Lighting	1909
Southern California Edison	1907
Boston Edison	1897

Regarding Mr. Hirsch's argument that

industrial companies might decide to generate their own power, the trend has been the other way. The generating capacity of factories, mines, and railway electric power plants decreased in 1955 while that of the electric utility industry increased about 12 per cent. As factory generating facilities become obsolete many of them are arranging to buy power from utility companies.

Heavy Yield Premiums on Recent Bond Offerings

As usual during a period of rising money rates and "tight money," some electric utilities have had to pay sizable premiums over the going yield rates for old issues. The difficulty is that the old issues do not come on the market in blocks very often (insurance companies do not like to take losses on their holdings), hence prices for old bonds are somewhat fictitious or "odd lot" in character. In some cases sinking funds may help to maintain them, though this is not very important. However, it does seem strange that bids on the old securities should continue on a lower yield basis when the new issues are sometimes available for a few days or weeks on a much more attractive basis.

A major difficulty with new issues during a period such as the current one, is that selling them is something like the old game of "musical chairs." Underwriters do not want to have unsold bonds on their shelves, for they do not know just when the situation will ease. Competitive bidding may make one or two groups a little more venturesome, but this varies with market psychology from day to day. Institutional buyers remain cagey about indicating the extent of their interest on a new issue since they are naturally bargain hunters. The result is that the utility company is "in the middle" and bears the brunt of this psychological maneuvering.

Sometimes, as the result of a temporary hold-off policy and resulting accumulation of funds, or because the pendulum has swung too far, competition between buyers suddenly becomes a factor, and a new issue "goes out of the window" to use the popular Wall Street phrase. This was the case with the quick sale of the Northern States Power 4¼s of 1986, which were retailed at 101.36 on September 13th. The yield of 4.17 per cent was obviously highly attractive compared with the yield of 3.61 per cent on the old Northern States Power 2¾s of 1975, and Moody's average of 3.59 per cent on a group of old-line Aa bonds. The Southern Pacific Railroad issue also went well September 20th after Halsey, Stuart and Kuhn, Loeb made

CURRENT YIELD YARDSTICKS

	1956	*1955-56 Range*		*1954 Range*		*1953 Range*	
	*Sept. 14th**	*High*	*Low*	*High*	*Low*	*High*	*Low*
U. S. Long-term Bonds—Taxable	3.19%	3.23%	2.62%	2.70%	2.41%	3.15%	2.70%
Utility Bonds—Aaa	3.57	3.57	2.93	3.13	2.86	3.43	3.01
Aa	3.59	3.59	2.99	3.19	2.92	3.59	3.07
A	3.74	3.74	3.12	3.37	3.11	3.72	3.23
Baa	4.02	4.02	3.37	3.72	3.37	3.94	3.50
Utility Preferred Stocks—High-grade	4.24	4.24	3.89	4.09	3.85	4.45	4.01
Medium-grade	4.58	4.58	4.19	4.51	4.17	4.87	4.43
24 Electric Utility Common Stocks	4.64	4.74	4.32	5.23	4.50	5.72	5.01
30 Gas Utility Common Stocks	4.50	4.77	4.29	5.22	4.64	5.66	4.74

*Approximate date.

Latest available Moody indices are used for utility bonds and stocks; Standard & Poor's index for government bonds.

identical bids and were given an opportunity to rebid—a very unusual event.

THE small issue of Southern Nevada first mortgage bonds on September 19th cost the company 5.62 per cent, and were retailed on a 5.43 per cent basis (5½s at 101). It was the company's first trip to the public bond market—last April it had sold a small issue of 4¼s privately. Rochester Gas & Electric on September 6th had to pay more than 5 per cent for $6,000,000 of preferred stock money, the stock retailing on a 4.95 per cent basis.

Irving Trust Company, whose chart of utility financing is reproduced on page 613, points out that few utilities have postponed their planned financing thus far and are not inclined to "speculate" on a decline in interest rates. However, at least two utilities—Southern California Edison and Carolina Power & Light—decided to sell common stock rather than bonds, and other utilities are said to be studying a shift from debt to equity financing—despite some recent market weakness.

Utility stock financing scheduled for October includes the following (amounts are approximate):

$580,000,000 American Tel. & Tel. (rights are now being traded)
$7,000,000 Transcontinental Gas Pipe Line
$7,000,000 Carolina Power & Light
$6,000,000 Central Illinois Public Service

For the full year 1956 Irving Trust estimates that the electric utilities will do 70 per cent of their financing with debt, compared with 58 per cent last year, while common stock offerings are down to 17 per cent *versus* 26 per cent. Electric utilities at September 15th had completed about three-quarters of their 1956 financing and gas companies about 70 per cent.

WHY isn't there more equity financing when senior issues are hard to sell? There are several answers: (1) A high interest rate on a single bond issue does not make much difference in the over-all earnings picture. If a utility company with $100,000,000 debt has financed in the past on an average 3 per cent basis and finds that it has to pay 4 per cent for $10,000,000 mortgage money at present, the higher coupon rate raises its average interest cost only about 3 per cent—and this is reduced to 1.5 per cent by tax savings. Moreover, there is always a chance that the issue can be refunded later. (2) Some utilities are doing equity financing indirectly by issuing convertible bonds or preferred stocks—recent examples are Detroit Edison and Long Island Lighting. (3) Many utilities have now completed their program of raising equity ratios to the desired levels. (4) Accelerated amortization and the newer accelerated depreciation (sum-of-the-years' digits, etc.) result in substantial tax deferrals and this extra cash can be invested in plant.

RECENT FINANCIAL DATA ON TELEPHONE, TRANSIT, AND WATER STOCKS

Rev. (Mill.)			*9/19/56 Price About*	*Dividend Rate*	*Approx. Yield*	*Recent Share Earns.*	*% Increase*	*Aver. Incr. In Sh. Earns. 1951-55*	*Price-Earn. Ratio*	*Div. Payout*	*Approx. Common Stock Equity*
		Communications Companies									
		Bell System									
$5,297	S	Amer. T. & T. (Cons.) ..	172	$9.00	5.2%	$13.28My*	8%	3	13.0	68%	64%
245	A	Bell Tel. of Canada	48	2.00	4.2	2.43*De	—	3	19.8	82	63
40	O	Cin. & Sub. Bell Tel.	88	4.50	5.1	5.45De	6	5	16.2	83	100
187	A	Mountain Sts. T & T. ...	125	6.60	5.3	8.80F	17	10	14.2	75	78
285	A	New England T. & T. ..	130	8.00	6.2	9.04Je	33	6	14.4	88	60
715	S	Pacific T. & T.	126	7.00	5.6	9.42My*	D4	5	13.4	74	58

89	O	So. New Eng. Tel.	40	2.00	5.0	2.06Je	NC	1	19.4	97	64
		Averages			5.2%				15.8	81%	
		Independents									
$ 4	O	Anglo-Canadian Tel.	30	$ .60	2.0%	$1.70De	7%	19	17.6	35%	48%
33	O	British Col. Tel.	48	2.00	4.2	3.28De	21	22	14.5	61	28
2	O	Calif. Inter. Tel.	13	.70	5.4	.92Je	D10	—	14.1	76	30
13	O	Calif. Water & Tel.	18	1.00	5.6	1.46De	20	11	12.3	68	42
14	O	Central Telephone	23	1.00	4.3	2.02Je	11	14	11.4	49	25
3	O	Commonwealth Tel.	15	.80	5.3	1.31De	27	26c	11.5	61	32
38	O	Continental Tel.	36	1.20	3.3	2.25Ma	38	48	16.0	53	23
3	O	Florida Telephone	18	.80	4.4	.88De	10	D	20.5	91	40
210	S	General Telephone	41	1.60	3.9	2.63De	27	31	15.6	61	34
15	O	Hawaiian Telephone	18	1.00	5.6	1.43Au*	14	19	12.6	70	47
5	O	Inter-Mountain Tel.	15	.80	5.3	.95De	9	10	15.8	84	55
19	S	Peninsular Tel.	39	1.80	4.6	2.02Je	9	5	19.3	89	46
19	O	Rochester Tel.	18	1.00	5.3	1.58Je	32	4	12.0	63	34
3	O	Southeastern Tel.	16	.90	5.6	1.36S	43	13	11.8	66	42
8	O	Southwestern St. Tel. ...	19	1.12	5.9	1.48Je	36	1	12.8	76	42
28	O	United Utilities	22	1.20	5.5	1.41Je	4	8	15.6	85	31
12	O	West Coast Tel.	19	1.00	5.3	1.30Je	3	25	14.6	77	43
242	S	Western Union Tel.	19	1.00	5.3	2.10De	39	19	9.0	48	85
		Averages			4.8%				14.3	67%	
		Transit Companies									
$ 22	O	Baltimore Transit	12	$1.50	13.3%	$1.27De	120%	X	9.5	126%	40%
13	O	Cincinnati Transit	5	.30	6.0	.34De	16	—	14.7	88	43
9	O	Dallas Transit	6	.35	5.8	.57De	D48	D	10.5	61	51
31	S	Fifth Ave. Coach Lines ..	27	2.00	7.4	2.85De	D 3	0	9.5	70	100
225	S	Greyhound Corp.	15	1.00	6.7	1.18De	D12	D	12.7	85	52
21	O	Los Angeles Transit	16	1.40	8.8	.94De	D 5	5	17.0	149	89
27	S	Nat. City Lines	22	2.00	9.0	2.74De	D 1	11	7.3	73	93
13	O	Niagara Frontier Trans..	9	.15	1.7	1.47De	—	14	6.1	10	78
70	O	Phila. Transit	12	.30	2.5	1.27De	390	D	9.4	24	42
6	O	Rochester Transit	5½	.40	7.3	.43De	D 2	D	12.8	93	40
23	O	St. Louis P. S.	12	1.40	11.7	.68De	D15	28	17.6	206	91
16	S	Twin City R. T.	17	1.80	10.6	Def. De	—	D	—	—	41
22	O	United Transit	6	.60	10.0	1.03De	94	36	5.8	58	48
		Averages			7.8%				11.1	85.25%	
		Water Companies									
		Holding Companies									
$ 34	S	American Water Wks. ..	10	$ .50	5.0%	$1.06Je	16%	6	9.4	47%	16%
		Operating Companies									
$ 4	O	Bridgeport Hydraulic ...	31	$1.60	5.2%	$2.04De	12%	4	15.7	78%	57%
11	O	Calif. Water Service	41	2.20	5.4	2.82Je	17	0	14.5	78	29
3	O	Elizabethtown Water	38	1.00	2.6	3.01Ap	NC	36	12.6	33	56
9	S	Hackensack Water	43	2.00	4.6	3.60De	10	11	11.9	56	37
8	O	Indianapolis Water A	42	.80	1.9	3.42De	27	27	12.3	23	33
5	O	Jamaica Water	34	2.00	5.9	2.83Ma	D 5	10	12.0	71	25
4	O	New Haven Water	58	3.00	5.2	3.32De	D 3	4	17.5	90	63
2	O	Ohio Water Service	27	1.50	5.8	2.69Je	66	5	10.0	56	38
7	O	Phila. & Sub. Water	32	.50(e)	1.6	2.20De	11	D	14.5	23	29
2	O	Plainfield Un. Water ...	65	3.00	4.6	5.47De	37	8	11.9	55	40
3	O	San Jose Water	47	2.00	4.3	3.49Jy	6	10	13.5	57	43
9	O	Scranton-Springbrook ...	17	.90	5.3	1.33Je	D 2	8	12.8	68	29
4	O	Southern Calif. Water ..	14	.80	5.7	1.04Je	5	8	13.5	77	34
3	O	West Va. Water Serv. ...	28	1.40	5.0	1.71Je	31	1	16.5	82	17
		Averages			4.5%				13.5	60%	

A—American Stock Exchange. O—Over-counter or out-of-town exchange. S—New York Stock Exchange. *On average shares. #July, 1955. Ja—January; F—February; Ma—March; Ap—April; My—May; Je—June; Jy—July; Au—August; S—September; O—October; N—November; De—December. (a)—Paid 4 per cent stock dividend. (b)—Paid 10 per cent stock dividend. (d)—Paid 25 per cent stock dividend. (e)—Also paid 5 per cent stock dividend. (h)—Paid 25 per cent stock dividend. (i)—Paid 2 per cent stock dividend. NC—Not comparable. NA—Not available. C—1952-55. D—Decrease. X—Deficit in 1951.



What Others Think

Communications for Modern Crime Control

IN 1882, the Los Angeles telephone company of its day had ninety-one subscribers. One of them was Chief of Police Henry King. He was the only city official with a phone. In that walking distance town of 13,000 everything was in sight from the fire tower. If a policeman made an arrest, he walked his prisoner to *the* police station, patrol wagons being still to come. If he wanted to telephone the chief from his beat, he might have called from a drugstore, or from the spacious residence of a prominent citizen that had iron deer on the lawn.

Today, Pacific Telephone and Telegraph in the Los Angeles area has a yearly governmental traffic of more than $6,000,000, with a government sales and service department to take care of the requirements of city, county, state, and federal agencies.

This department recently worked with the Los Angeles Police Department to design and install a telephone system in the city's new police administration building. For the moment, it is believed to be the most efficient and complete police communications setup in the world. Police executives from many cities in this country, Canada, and Latin America, have come to study it, or written or toll phoned to ask for details. There is just as keen an interest among telephone people elsewhere, who may have similar installations in hand, or in prospect.

What Chief King would think of it is something to imagine, for the little hometown police force he commanded 70-odd years ago has grown to 5,000 officers, covering a city of 454 square miles, with patrolling of more than 6,400 miles of streets. And they do a faster job in emergencies than was likely in the old walking distance *pueblo,* with its primitive communication facilities.

THE Los Angeles police say it is almost routine with them, today, when a citizen calls for urgent help, to have radio patrolmen knocking at his door before he has hung up, and detectives, ambulances, fire engines, and other services will be coming as needed in that particular case. Crimes are often prevented, crooks caught, and disasters forestalled or minimized through the police phone and radio systems. For years, speed has been of the essence in this field of police work; new inventions in communication and transportation have been adopted to increase promptness of response; and the shrinking profit margin on crime has been steadily shrunk further, like Balzac's *"Wild Ass's Skin."*

Modern and ingenious as this new

phone system is, it simply makes available the latest telephone engineering improvements on that police system. That is an important point from which to start. Governmental agencies have their own communications problems, have developed their own ways of working, and the telephone engineer does the best job when he understands their work.

The heart of this system is the call-distributing setup on the modern complaint board, handling thousands of calls daily from the public. Many of these calls are of a minor nature, from the standpoint of police action—excited people phone in about suspicious characters seen in their neighborhood, or unaccustomed noises, a sonic blast, an earth tremor; they can be reassured. But in that daily traffic there will be a small percentage of gravely serious calls, where crimes are being committed, or lives endangered, or a disaster has occurred. Such calls must be recognized, information obtained, and police action started, in seconds. The board is manned by experienced officers who utilize the citizen's actual call to alert special services.

Up to a dozen officers can work on the complaint board in an emergency, but half that number handle the normal traffic. They work with headphones for greater efficiency, and because the calls come in automatically on a "zip" tone in the receiver.

As an officer answers a possibly hysterical person, he asks for information about the location, and the seriousness of the case. He writes as he listens, often calming the caller to get the necessary facts. Other calls relating to the same case may come at other stations on the board.

If a crime is in progress, a radio car is alerted; through skillful distribution of radio cars, police action is such as to prevent crime or apprehend criminals. As details are learned, knowing what special officers will be needed, the listening officer presses buttons in a "hot-shot" box at his elbow, and the call is heard, while in progress, over loud-speakers, in detective, radio, robbery, homicide, and other rooms. When the call is completed the officer drops his written record on a moving belt, to be conveyed to such departments.

This board is supervised by a "watch commander," who has special facilities for monitoring on all positions, and who can be connected with any position by an officer who decides that he ought to follow the call. He also has a visual monitoring system for incoming calls, showing the number by red lights, by which he can determine when extra officers are needed on the board.

Another major part of the police installation is the records and information section ("R&I") by which police data in the files are quickly made available to officers starting on a call, or working on a case.

In Chief Henry King's day such information was carried in officers' memories. There were no fingerprints, no phone communication between cities, no Wirephoto services, or other aids. The old-time "cop" remembered faces, voices, and other details, read police journals and circulars showing pictures of criminals wanted, and exchanged information with other officers. Memories were stimulated by offered rewards.

Today, "R&I" contains information about three million individuals—fingerprints, photos, records of arrest and prison terms in the case of criminals.

Here, too, speed is of the essence. This information must be quickly available to every officer who wants it, in developing clews and investigating crimes, to identify

suspects who may be ex-convicts or parolees. Through special phone and teletype facilities it is available in a matter of minutes.

The old-time "cop" never had to spot stolen cars. "R&I" lists almost 50,000 automobiles stolen, lost, or wanted in connection with crimes or disappearances.

An important point to be kept in mind by telephone people serving governmental agencies is that they are often housed in obsolete quarters, work in old, crowded buildings that would be condemned under their own factory laws.

Such was the case with the Los Angeles police. Until their new administration center was opened, they had worked in a group of old buildings dating back almost to Chief King's day. When the mayor of the day was asked about a modern police headquarters he always had to say that there were no funds in sight. Hopes rose a bit when these old buildings were shaken by an earthquake, but not until twenty years later were they realized. From the telephone engineering standpoint, the job to be done when city or county employees move out of a slum, into decent modern quarters, is to bring up to date the phone equipment with which they have been working, under handicaps.

The Sheriff Had His Problem

ANOTHER typical governmental job in which Pacific Telephone co-operated was that of the Los Angeles county sheriff, who has his separate police force in one of the nation's largest counties (4,080 square miles), with headquarters in the county jail, in the city, and 12 outlying stations. Like the police force, he has a spate of telephone calls from the public, but of a very different nature.

The sheriff has a 7-story jail in the Hall of Justice. It was originally designed for 1,800 inmates, but like many other governmental structures has been outgrown, and now has a population fluctuating between 2,800 and 3,300 prisoners.

Besides, the sheriff makes an average of 150 arrests daily, and as soon as an individual is taken into custody, his relatives, friends, working or business associates, attorneys, bail bondsmen, the newspapers, and the general public want to know things. As the prisoners in the jail are heard, tried, convicted, or acquitted, over considerable periods, there is a day-to-day concern about them, until they finally begin serving a prison or jail sentence.

Most of these inquirers call in by phone. Naturally, there is only that single prisoner in whom they are interested, and they expect the sheriff's switchboard operators to answer immediately, today, and tomorrow, and days after.

The sheriff, therefore, has enormous files, and the length of time it takes one of his operators to find the latest facts about a given individual runs up his costs, and, of course, affects his public relations —even a sheriff has to stand well with his public, because he is elected to office.

THE sheriff outgrew his record and phone system in a manner familiar in business, and needed modernization assistance of the same kind that has been developed in business.

The Los Angeles county sheriff had one big book in his central booking office. This was a "center of confusion," in the words of the county's new Department of Communications. The big book was torn apart, as it were, opened up to more people who wanted to consult it, and in this day and age that was done with telewriters. This description of the new system is taken from a Department of Communications report:

Each time a booking office record is

created, covering the legal status of an inmate of the county jail, by teletype, it is duplicated by three other "slave" machines in the telephone-answering room, plus two more machines in the jail pass office and attorneys' room. Teletypes in the telephone-answering room create five copies of the booking office card, which was redesigned by the sheriff's office to include all necessary data. The answering room has four answering positions, each with a 10-line Key Unit cabinet, a headset, nine lines down to the main switchboard, and one intercom line to the booking office. A copy of each booking card is maintained in an up-to-date file with all nine lines from the switchboard showing in multiple appearance at each of the four answering positions. A call appearing on a trunk at the main switchboard is handled by a Department of Communications operator, who completes the call into one of the nine lines to the telephone-answering room, where all questions are answered. The intercom line to the booking office enables answering personnel to have access to jacket material not normally a function of the booking office card record. No incoming call from the public is transferred to the booking office, thereby avoiding congestion in limited facilities there.

BEFORE this new system was installed, telephone traffic varied from a minimum of 55 calls to 125 per hour, directed to the booking office, with an average holding time of 600 seconds (ten minutes).

This has been reduced to an average holding time of 189 seconds (three minutes), with traffic apparently leveling off to 83 calls per hour. Four operators on the answering cabinets take care of traffic through the day, and two operators suffice for off-hour traffic. Before the new system, as many as 26 cord circuits on the main PBX were at times tied up by stored calls to the booking office. This tied up 3 per cent of the total switchboard capacity, and 75 to 80 per cent of the sheriff's trunking facilities into the Hall of Justice. As operators become more proficient in working with the new records, this time is being still further reduced.

"Jails are big business!" said Pacific Telephone people, after working with the sheriff and the Department of Communications to develop the new system.

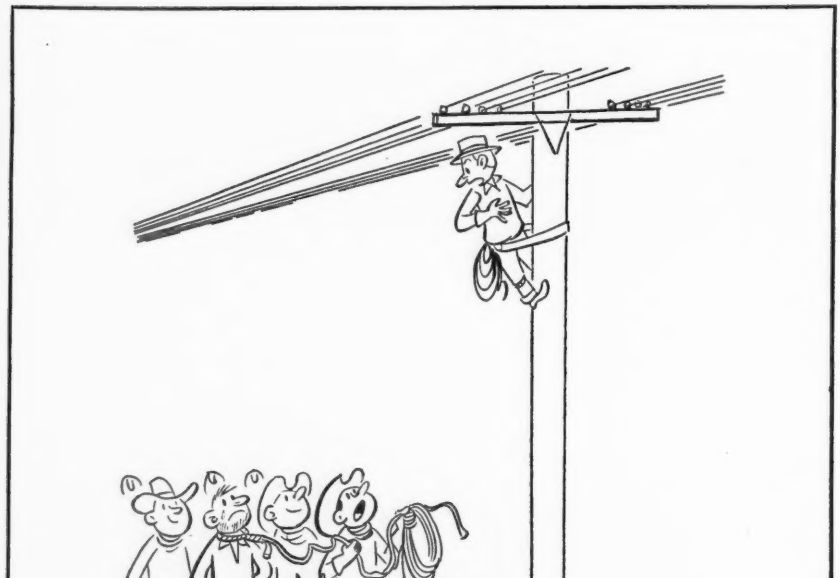
County Department of Phone Management

LOS ANGELES county has under way a $73,000,000 capital expenditure program for new administration, court, and record buildings, and its general hospital. To plan phone facilities for these new buildings, a Department of Communications was created two years ago. This department has three fields of activity:

1. The development of adequate phone facilities in new county construction.
2. The creation of media for the recognition and identification of phone traffic problems.
3. Telephone engineering directed to the correction and solution of problems arising in its studies.

During its first eighteen months the department was responsible for the type and size of phone systems in 51 structures, new and rehabilitation of old facilities. Such things were covered as the determination of manual *versus* dial, conduit, and terminal distribution facilities, and space allocation for manual and/or dial switchboard equipment.

In areas served by Pacific Telephone,



"SAY, PARTNER, WOULD YOU MIND IF WE USED YOUR CROSSBAR FOR A SPELL?"

the department states, details of station analysis and the projection of the results of these analyses, have been accomplished by telephone engineering personnel, working with the department's own engineers. Such teamwork has resulted in latest facilities in stations ranging from one manual switchboard position, to one of 26 manual positions, with complete dial facilities, serving over 2,500 stations. In areas outside Pacific Telephone service, it has been necessary for the department to conduct its own station studies.

PRELIMINARY studies showed that the new department had serious telephone traffic management problems. First, the level of existing phone traffic had to be determined, and corrective steps taken to bring poor service up to commercial level. Telephone operators were found generally well-trained and reasonably competent, but station facilities were seriously inadequate in county departments served from MUtual 9211, the county switchboard, 26 positions, manually operated. The engineering job to be done was beyond the

department's own staff, and with Pacific Telephone's governmental department, a station survey team was set up. During nine months this company team analyzed the traffic flow across 3,300 county stations, submitted recommendations resulting in some 2,000 orders for changes in existing equipment, additions of new station facilities, and elimination of unnecessary installations.

Midway in this program the county department found that its busy-hour traffic on MU 9211 had increased from 3,082 to 4,387 calls per hour, but that holding time had dropped from 326 to 186 seconds per call, and manual operating requirements had dropped from 42.2 to 23.4 operators.

On this showing of improvement, the telephone company survey work was made permanent.

BESIDES the sheriff's problem, there was another abnormal traffic situation in the tax collector's office, one likely to be found elsewhere.

Each November, the tax collector mails over a million tax bills to property owners. County taxes have been gradually increasing, and this mailing brings telephone calls that swamp the county switchboard.

Department and telephone engineers developed an answering scheme for the tax collector's office. The public, calling a single number, reaches 50 trunk circuits. Automatic distribution facilities send these calls to 25 answering positions, each provided with an indexed information book that answers all questions. The first 50 calls that come in are accepted by the automatic trunk facilities; 25 are immediately distributed to the answering positions by a "zip" tone, and the callers at the 25 "held" circuits are thus advised that their calls will be answered presently, by a revertive ringing signal. As answering positions become available, their calls are automatically connected.

This setup has reduced holding time to seventy-two seconds, and eased the tax collector's annual jam.

A Job for Goldsmith's Schoolmaster

A TREMENDOUS burden of knowledge has been laid upon the operators at the county's MU 9211, for they must know how to connect hundreds of different inquiries to the right county department. Like the pedagogue in *"The Deserted Village,"* the wonder grows that one small head can carry all they have to know.

To expedite the answering of difficult calls, an information center is being planned for the Civic Center, with a Simpla-wheel card index automatic filing system which will enable a single information operator to locate one 3 x 5 index card carrying the required data out of 41,000 such cards in a matter of two seconds.

This information system will be linked to a new telephone directory of county departments and employees. Service changes effected since the Department of Communications took hold quickly made the current interdepartmental directory obsolete. It is being reorganized on a loose-leaf basis, with data accumulated on IBM cards. Directory changes can then be published every thirty days—it is a book of 250 pages, with editions of 8,000 copies.

For many years, according to the department, this directory has been a sort of *"Blue Book,"* establishing the social strata of county people. It is now planned to make it a telephone service tool, giving it a wider distribution, and enabling the public to ask the switchboard operators for a definite station number. This will be facilitated by the fact that a large volume of this traffic comes from organized

groups, such as the legal profession, and county field people. It is expected that holding time on calls will be drastically reduced. At present, about 26 per cent of the traffic, 7,800 calls daily, is on the basis of station numbers asked for. Wider use of the directory may increase this to 40 per cent.

THE magnitude of governmental traffic is shown in plans for new county buildings to be erected over the next three years. Requirements to date anticipate a 600-line board for the Engineering Department, a 550-line board for the rehabilitated Hall of Justice, a 400-line board for the Bureau of Public Assistance, a 2,000-line board at General Hospital, a 300-line board for the Flood Control District, a 250-line board for the Road Department, a 450-line board for the Hall of Records, an 800-line board for the new Administration building, an 800-line board for the new county courthouse, and a 375-line board for the Air Pollution Control District. These boards will all be coupled together via tandem dialing tie lines, representing the sixth, seventh, and eighth levels out of a central distribution system, and be on a 5-digit universal numbering basis, which will permit any station on these PBX's to dial any of the other 6,524 stations without going through an operator.

FINALLY, it has been found that county employees can profit by training in good telephone usage. Pacific Telephone has assigned trained personnel to the Department of Communications, to create a telephone training team within the department. Classes are conducted in county offices to make employees telephone conscious, to teach proper use of telephone equipment, and to develop the good telephone manners that play so large a part in public good will. Besides better public relations, it is believed that such training will reduce holding time on calls, and permit operating personnel to improve their work. This training program, with the department's own staff, coached by Pacific Telephone training personnel until able to go on its own, has been made a permanent group, and has definitely contributed to the general program of telephone improvement.

—JAMES H. COLLINS

New Outlook for Telephone Communications

COMMUNICATIONS systems have an immediate and obvious rôle in defense which holds great promise of service for the future. These forward-looking aspects of the telephone and telegraph industry were emphasized in a feature article in the *Bell Telephone Magazine* for the summer, 1956, written by Eugene J. McNeely, executive vice president of American Telephone and Telegraph Company. The world hopes, of course, that mankind will never resort to open warfare again. But that hope is a poor form of insurance against the possibility. Our defense system is being aided immeasurably by the communications and electronics industries. Mr. McNeely cites in his article the testimonial given by the director of communications of the U. S. Air Force as follows:

> As an assistance to national defense, particularly in the air defense aspects, the telephone system is becoming a greater national asset each year.

All branches of the Bell system, Mr. McNeely stated, are continuously at the serv-

ice of the Army, Navy, Air Force, and other government departments. He added:

> . . . We do not make it our practice to seek military contracts, but when we are asked to perform work in the fields where we are specially qualified we make special effort to meet the requests. There are three reasons why we are celled on. In the first place, communications are literally the first line of defense. Second, modern weapon systems use in large measure the same art that we use in telephone systems. Third, the skills of communication experts cover the whole range of inventing, building, and operating systems that use this art.

DURING the mid-fifties, and to date, Bell Laboratories have continued work on electronic methods for the control of new defense weapons. Western Electric Company, the Bell system's manufacturing subsidiary, has maintained high-level production of guided-missile systems to protect American cities. Together these two organizations completed a 1,500-mile submarine cable for a guided-missile test range in tropical water adjacent to Florida. In the polar regions, construction proceeded on the Distant Early Warning (DEW) Line of radar stations and on related installations in Alaska. Another little-publicized Western Electric subsidiary, the Sandia Corporation, continued to manage the Atomic Energy Commission's Sandia Laboratories (New Mexico) wherein atomic weapons are developed and designed. In addition, McNeely declared:

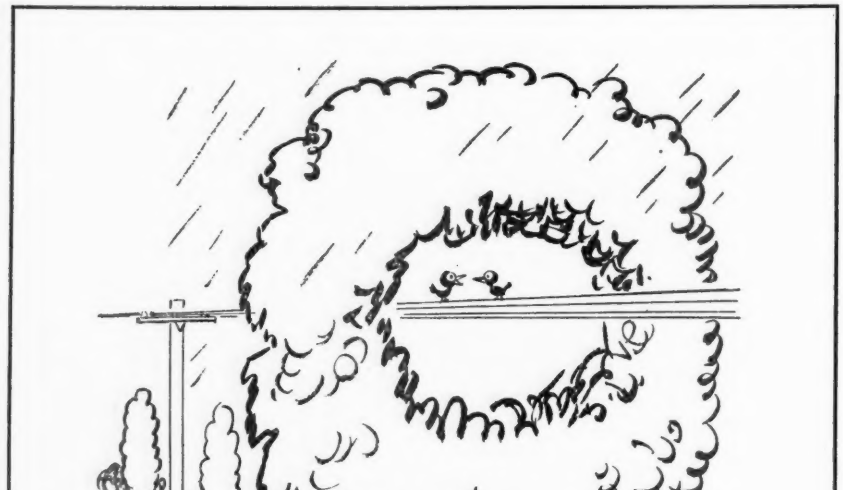
> The Air Force has asked us to provide certain services for its proposed semiautomatic air-warning and control system known as SAGE. This is a system for tying together radars and defense weapons through a chain of electronic computing centers. It was developed by the Lincoln Laboratory of MIT, and is being built to provide the nation with a more nearly automatic defense against air attack. It is not a new air defense system, but an improvement over the existing system for which the telephone companies now provide communications. Western Electric has been called on to design and supervise construction of key government-owned buildings to house SAGE equipment, and to co-ordinate engineering and administrative work. The Bell telephone companies, and the non-Bell companies likewise, are to provide the interconnecting communication facilities and services.

Mr. McNeely is convinced that the nation's ability to defend itself against any form of aggression will depend upon the advancement of the communications art. He calls attention to the fact that the Bell system's efforts in this field are integrated with those of many other great organizations.

The Future of Telecommunications

MANY things now unheard of will be developed in the years ahead, Mr. McNeely predicted. He pointed out how startled our predecessors of the Victorian era would be to see television, radar, microwave radio, switching systems with built-in logic and memory units, and other modern communications devices in practical operation. He observed:

> Communications in the new era will be favorably affected by a new philosophic concept known as the "information theory." This is a complicated mathematical theory which tells us that all forms of information can be measured or expressed in a quantitative way. The unit of measure is the binary digit, which is contracted to "bit" (a "bit" is



a yes or no answer—in electrical language a pulse or no pulse). Fortunately this language turns out to be the natural language of machines so that we can easily translate the written word or the sound of the voice into trains of pulses. These trains of pulses can be generated and processed, for example, by diodes and transistors which can conduct or not conduct and by capacitors which can be charged or uncharged.

Telephone systems based on this understanding of information and implemented with modern high-speed electronic devices, such as the transistor, will offer great advantages. McNeely cited a new switching system which capitalizes upon the high speed of electronic switches and uses fast electronic memory currently under development. He further declared:

> Within the next two years we expect to put into service the first electronic switching office. Whereas today, when you dial a number, a thousand or more relays must operate to put your call through, the new electronic system will have no moving parts. It will be much smaller than present systems, perhaps less than one-quarter size. Its fast elec-

tronic logic and memory will enable it to diagnose its own troubles and will make possible new kinds of services not feasible with present electromechanical systems.

All in all, Mr. McNeely confidently predicts growth, improvement, and new, unique services to be characteristic of the communications industry's future. More than 100,000,000 phones in service in the United States by 1999.

—F. J. T.

An Analysis of Electric Rate Structures

"ELECTRIC UTILITY RATE ECONOMICS," by Russell E. Caywood, manager of rates, West Penn Power Company, is a recent volume, sponsored by *Electrical World* and published by McGraw-Hill Book Co., Inc. It is a worthy addition to the scant literature of electric utility rates. Within the confine of only 236 pages the author has ranged widely and succinctly over the whole field of rate making, rate design, administration of rates, engineering economics, statistical methods, commission and court decisions (both at the state and federal level), cost analysis, revenue requirements, the work of rate departments, etc. It is the opinion of this reviewer that Mr. Caywood's book should command a wide readership not only among utility executives and rate engineers but also among students of public utility economics, security analysts, banks, insurance companies, and other financial institutions which, while primarily concerned in utility investments, are also interested in the better understanding of the electric utility business.

Mr. Caywood's book is primarily concerned with and generally confined to the economic basis of electric utility rate making, rather than the legalistic or regulatory aspects. In other words, his book deals mainly with the internal components of rate tariff structures which are, in the first instance at least, generally a responsibility of management. He does not go into much detail on the matter of preparation or the justification for a rate case where resulting rate tariffs are subject to regulatory inspection and review by state or federal commissions. The price of the book is $10.

Considering the limitation of space, the writer has discussed all of the more important aspects of rate making and design. Many chapters include a so-called check list, wherein there are enumerated all of the principal points which a rate engineer should consider in specific situations. A wide variety of rate problems are set up and the appropriate solution given in each instance. It is a practical book which should appeal to the practical man.

ONE could have wished that more space had been given to statistical methods and that the treatment of tax deferrals under §§ 167 and 168 of the Internal Revenue Code had been given greater elaboration. Also, the chapter on earnings has not dealt with the broad problem of revenue requirements which would preserve the integrity of real capital in the utility enterprise but has presented, rather, a series of excerpts from court and commission decisions dealing with this matter. This reviewer feels that not enough stress has been laid on the problem of inflation, fair value, and economic depreciation. In other words, not enough emphasis has been put on the ultimate objective towards which the electric utility industry should strive but rather on condi-

tions as they exist at present. For all that, this reviewer believes that this is a good book and deserves the widest possible circulation.

The author has been in rate work for thirty years. He has worked at Westinghouse on power system studies, with Consolidated Edison Company of New York, Inc., on engineering economic studies, and is active in electric industry committee work.

Further information may be obtained from McGraw-Hill's Industrial and Business Book Information Service, 327 West 41st street, New York 36, New York.

—C. P. GUERCKEN

State Regulation and Atomic Energy

PRIVATE companies interested in peaceful atomic energy development face an "almost incomprehensible maze" of state laws and regulations which may impinge on their activity. This is one of the major conclusions of "State Regulation of Atomic Energy," first published section of a comprehensive analysis of *"Atomic Energy and the Law"* now being developed by The University of Michigan Law School.

Part of a broad, pioneering study on the legal implications of peacetime atomic energy financed by the Michigan Memorial-Phoenix Project, "State Regulation of Atomic Energy" is designed to give private enterprise a check list of legal problems it may encounter at the state level in atomic energy development. It also suggests how states can "bring order out of chaos" in this new field.

Written by Dean E. Blythe Stason, Professor Samuel D. Estep, and Associate Professor William J. Pierce of The University of Michigan Law School, the book discusses "confusing and overlapping jurisdictions" of state agencies.

In the absence of the creation of a single state authority to co-ordinate health and safety regulations in the atomic field, the authors say, "persons desiring to engage in atomic energy activities must consult with all regulatory agencies exercising health and safety powers, and should encourage co-operative efforts among these agencies."

ANOTHER important field in which state regulation will have great effect on atomic industrial development, the writers believe, is that of power generation.

They believe most state public utility commissions will probably allow "reasonable expenditures" for research in use of atomic fuels to be charged off.

They note that research is necessary to reduce the cost of electricity produced with atomic fuels and to develop profitable uses for atomic by-products, which also can be expected to lower costs and rates for atomic-generated power in the future.

In similar fashion, they add, "If lower costs may eventually be expected, most public utility commissions will look favorably on investments by existing utilities in nuclear power facilities."

The authors believe it would not be advisable for commissions to require that costs of nuclear-generated power be no more than costs for conventional power before authorizing construction of atomic power plants, since this would "unduly hamper the development and use of this new technology."

"Only through experience in operation can it be expected that the most economical methods of using atomic energy will be achieved," they emphasize.

The March of Events



Bonneville Warns of Power Cut

THE Bonneville Power Administration last month notified 13 Northwest industries to be prepared for 100 per cent curtailment of interruptible power supplies by October 1st. The power cut would affect plants ranging from aluminum and chemicals to paper mills.

Columbia river flows in the headwaters were reported to be approaching a critical low, due primarily to subnormal June-August precipitation, while flows at McNary and Bonneville dams were expected to fall below median by October 1st.

William A. Pearl, Bonneville Administrator, said only region-wide sustained and continuing rains "can alleviate the critical situation on interruptible power, and even if stream flows recover to median, approximately half the interruptible loads will have to be curtailed."

Arizona

Public Power Plant Hearing Deferred

A HEARING which had been scheduled for September 18th by the Arizona Power Authority on a controversial proposal that it build and operate a steam-generating plant at Benson was postponed recently at the direction of Chairman E. A. Thomas in order to give the agency time to obtain additional engineering data. Thomas said the hearing would be rescheduled when such information became available.

The hearing was to have been held to give opponents of the proposal an opportunity to present their case. Private electric utilities already have voiced their opposition to the proposed plant and the Arizona Municipal Power Association had asked to be excused from the hearing.

California

City Asks Rental for Use of Streets

THE city of Los Angeles last month filed suit in superior court to collect $7,079,718 from Pacific Telephone and Telegraph Company as rental for the use of city streets during the last four and a half years. In the complaint the city asserted that it had not been paid for use of the municipal facilities since February 8,

1952, when the company's franchise expired.

Application for a new franchise, the complaint indicated, had been made by the company but the city and the public utility have reached an impasse on its terms.

In filing the complaint, the city attorney said it was believed the company should pay something in excess of $1,500,000 a year, but that the company had offered only $250,000 annually.

The suit sets forth that under a decision returned by the state supreme court a year ago, the company is obligated to obtain a franchise from the city only for the area of 43 square miles which comprised the municipality when the original franchise was granted May 18, 1905.

Nebraska

Wants to Sell Just Retail

THE North Central Gas Company told the state railway commission recently it has no desire to get into the wholesale natural gas business, but wishes to continue strictly as a retailer. The company ought to have the right, it contended, "to determine in what field of business it will engage."

The arguments were set out in a brief answering the complaint of the city of Bayard, which has asked the state commission to force the gas company to sell natural gas wholesale to Bayard and to quote rates for such wholesale selling.

At issue in the case is the question of whether such a gas company is a "common carrier" subject to railway commission regulation.

North Central has been selling gas at retail only, delivering the product to distribution points over its own pipelines. Last April Bayard citizens voted to acquire the gas distribution system in that city and condemnation proceedings are now in progress.

The city contends the gas company is legally obligated to furnish natural gas at wholesale to the city if the city acquires the distribution system, but that the gas company denies it has any such obligation and refuses to quote any rates for such service.

New Hampshire

Court Studies Utility Tax

A SUIT challenging the validity of New Hampshire's electric and gas franchise tax was taken under consideration recently by the state supreme court after hearing two days of argument.

The case was brought by Public Service Company of New Hampshire, which contends it should not be taxed on its franchise since the franchise has no value as such, inasmuch as it is not something that can be sold and it may be taken away by the state. However, the state holds that an electric utility franchise does have a value and is a proper subject of state taxation.

New York

Power Authority and Utility Reach New Accord

THE New York State Power Authority last month claimed to have a tentative agreement with Niagara Mohawk Power Corporation that apparently would remove objections to its original Niagara power development proposal. The agree-

ment revised an application of the Power Authority to the Federal Power Commission asking permission for the Power Authority to develop Niagara river power.

Under the revisions announced, the Power Authority would agree to sell Niagara Mohawk 445,000 kilowatts of Niagara power "upon fair and reasonable terms similar to those offered other purchasers of power for resale, for a period ending on the final maturity date of bond initially issued to finance the project."

This was expected to mean Niagara Mohawk would get the power for forty years, since bonds for the authority's other big project on the St. Lawrence river have a 40-year term. In return, Niagara Mohawk agreed to drop all its rights to Niagara water and to damage claims under existing grants and licenses. The utility held a license to use Niagara power until 1971.

Power Authority Chairman Robert Moses said in announcing the amendments to the application that Governor Harriman has indicated "he will interpose no objection to the application with these modifications." Mr. Moses also said the trustees of the authority and Niagara Mohawk have agreed to the new provisions. The agreement still depends on the FPC and court interpretation.

Proposes Billing Changes

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., has asked the state public service commission for permission to change the way it bills some 4,900 of its more than 2,700,000 customers so it could raise their rates for electricity and gas by a maximum of about $9,600,000 a year. If approved, the new plan would go into effect on February 1, 1957.

The proposed new billing scheme would affect large power and gas users who are presently charged under a plan that combines all meter bills in buildings, or parts of buildings, that are under common ownership and within 100 feet of each other. These customers thus get the benefit of low bulk rates covering most of the electricity and gas they consume. Consolidated Edison's proposed billing method would split up these meter stations and each one would be charged a higher, individual rate.

North Carolina

Phone Co-ops Challenge Order

ACCUSING the state utilities commission of unlawful, arbitrary, and capricious action, the Randolph Telephone Membership Corporation last month served notice it would appeal to the courts from a commission order directing Central Telephone Company to serve people in the Asheboro area.

The co-operative contended that the order—first of three involving similar issues—had the effect of sending private telephone companies into areas served or marked for service by REA telephone co-operatives. The commission held that the people, who had petitioned it for help, have a right to be served by public utilities and should not be made to wait for service from a co-op.

Oregon

Phone Rate Boost Proposed

TELEPHONE rate increases which Pacific Telephone and Telegraph Company sought to put into effect in Oregon by October 8th were recently suspended for six months by state Public Utilities Commissioner Charles Heltzel, who said he would arrange public hearings on the

proposal before announcing any decision.

The new rates would boost revenues from the company's Oregon business by an estimated $186,000 monthly. They would raise the cost of residence telephone service throughout the state from by 10 to 60 cents a month and the monthly cost of business service from 10 cents to $2.50.

The new rates were estimated to boost telephone earnings to the 6.75 per cent level. A company spokesman said earnings on operations in Oregon have fallen well below those of other businesses operating in the state. The company's rate of return during the first six months of 1956, he said, had averaged 5.6 per cent.

Texas

Rate Increase Request Reduced Fraction

UNITED GAS CORPORATION recently reduced its rate increase request by less than one per cent as the city of Houston started an attack against figures the company presented to justify a hike. It has asked a 40.6 per cent boost in gas cost to domestic and commercial consumers.

Councilmen attacked the company's rate base as being unrealistic. United is asking for a 6 per cent return on its base. The company had previously asked for an increase of 41.22 per cent, but a company spokesman said that since the original request was made the company received a $105,000 dividend on a group life insurance contract.

Washington

Petition Asks Dam Block

AN initiative to the state legislature, aimed at blocking construction of Tacoma's two proposed dams on the Cowlitz river, was filed with Secretary of State Earl Coe last month. The measure is sponsored by the Washington State Sportsmen's Council. It would prohibit construction, completion, or operation by any public or private corporation or other group of dams more than 25 feet in height on tributaries to the Columbia river downstream from McNary dam.

A spokesman for the sportsmen's council said the measure is designed to outlaw high dams on those streams by state control of private and public corporations, rather than by state control of the rivers, as did the 1949 lower Columbia river fish sanctuary act.

The legislature can either pass the initiative into law or refer it to a vote.

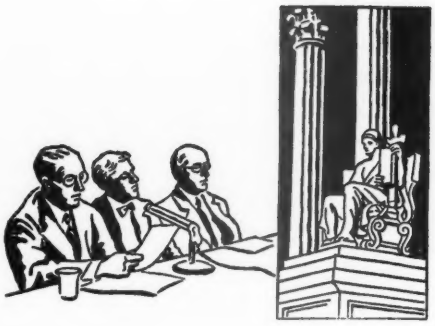
Power Act Legality Upheld

SUPERIOR Court Judge Max Church recently upheld the legality of the state power act. He denied an injunction sought by R. L. Keeting of Dungeness to stop the Clallam County Public Utility District from joining the Northwest Power Pool. Keeting had challenged the legality of the state act. His attorneys said they would appeal to the state supreme court.

Wisconsin

Gas Property Sale Approved

THE state public service commission last month authorized the Platteville City Gas Company, Platteville, to sell its property for $40,000 to the Consumers City Gas Company, a new corporation organized by the United Petroleum Company, Minneapolis.



Progress of Regulation

Trends and Topics

Extension into Co-operative's Area

An exception to the established principle of protection against competition is evident in decisions involving co-operatives. Regulated companies are assigned to their respective areas, required to render adequate service, and given a monopoly so long as they render adequate service. Co-operatives which are free to accept or refuse members and which are not subject to commission regulation are in a different category.

Service Extension by Telephone Company

The North Carolina commission, in two recent decisions, upheld the right of persons living in the area occupied by a membership corporation to demand service from a telephone company (14 PUR3d 342; 14 PUR3d 364). No vested rights or statutory rights to serve any designated area had been conferred upon the membership corporation, regardless of maps, surveys, orders, or descriptions in the co-operative's charter. A membership corporation, not being a public utility, was not entitled to the protection of territorial integrity or freedom from competition. The co-operative could not offer its services to the public at large but could render service to members only. Members had the right to withdraw from membership and request service from a regulated company.

Similarly, a resident of a town divided into two parts and served by a telephone association and a telephone company was held by the Maine commission to be entitled to an order requiring service from the company. The association's lines were in bad shape, and the company's lines came directly to the applicant's property and were attached to his building, but the company was unwilling to extend a very short distance necessary to reach his home (18 PUR NS 236).

The Indiana commission, in one case, gave subscribers a choice. Residents of an area which a co-operative telephone company claimed, and was willing to serve on condition that subscribers purchase stock in the co-operative and

build and maintain their lines into the switchboard, were permitted to obtain service from the co-operative on such terms or obtain service from any telephone company serving adjacent areas, if such a company was willing to construct and maintain lines and serve them at proper rates (5 PUR3d 104).

Unregulated Company Not Protected

An analogous situation once arose in Missouri. It did not involve a co-operative, but an unregulated out-of-state company. The Missouri commission ordered Southwestern Bell Telephone Company to serve a corporation located in Missouri but in an area served by Kansas State Telephone Company from its Galena, Kansas, exchange (85 PUR NS 65). The Kansas Company was not licensed to do business within the state and had not filed reports with the Missouri commission. The Bell company recognized the territory of Kansas State and had no disposition to invade the operating territories of others excepting under orders of the commission.

Regardless of the desirability of two or more companies operating in the same general territory having definite service areas, no such "sacrosanctity" inheres in, or surrounds, any established service area when this would be contrary to the public need, according to the commission. The commission said it was against the public interest to deprive the applicant from enjoying the benefits of better service which Bell could render to it through an exchange in Missouri.

Competition with Electric Co-operative

Electric companies have, of course, been involved in similar territorial disputes. In a recent case, the Idaho supreme court held that the Idaho commission lacks jurisdiction to entertain a complaint by a rural electric co-operative charging territorial encroachment by an electric company. The power of the commission in cases involving territorial encroachment is limited by statute to cases where territory is served by "another public utility" and where the complaint is made by "the public utility" claiming to be injured. But co-operatives organized pursuant to the federal rural electrification acts, said the court, are not public utilities and are not subject to the jurisdiction of the commission. The state statute does not apply to co-operatives and affords them no ground to complain to the commission. Furthermore, other provisions of the same statute expressly recognize the right of an electric company to extend its lines into contiguous territory.

Another statute provision authorizes any corporation or person to complain of a violation of law by a public utility. That statute, it was contended, had been violated. The court disagreed, observing again that the statute referred to was not applicable to co-operatives. Co-operatives serve only their own members and cannot be required to extend service to nonmembers. For this reason they cannot claim an exclusive right to serve a given territory as against a public utility, which is bound to serve all applicants within its economic reach.

Clearwater Power Co. et al. v. Washington Water Power Co. et al. 299 P2d 484.

The Ohio commission, in one case, decided that an individual being served by an electric co-operative could demand service from an electric company in the area (4 PUR3d 369). The commission noted the fact that the co-operative was not a public utility and that it did not have a schedule of rates filed with the commission. It was not subject to commission regulation. The commission could not order it to render service or to improve service being rendered. This placed the customer, as far as the commission was concerned, in "the same position as any person who is receiving no electric service."

Review of Current Cases

Commission Rejects Exceptions to Rulings on Fair Value, Rate Case Expense, and Directory Losses

THE North Carolina commission affirmed its earlier order (14 PUR3d 57) authorizing the Durham Telephone Company to increase rates to yield a return of 5.81 per cent. The company had taken exception and was granted a rehearing with respect to the fair value of its property as found by the commission, the return allowed, the amount of net operating income resulting therefrom, consideration given to financial losses from directory advertising, and the disallowance of rate case expenses.

Fair Value Determination

In affirming its finding of fair value, the commission said that it had given consideration to all the provisions of law, applicable statutes, and their interpretation by the state supreme court. It had not used any analytical, metric balances or the refined precision of arithmetical formulas in arriving at fair value. In this, however, it believed that it had the support of the North Carolina supreme court.

Directory Losses

In fixing the return allowance, the commission said that it had made no reduction for the losses sustained in directory advertising, although it had said that the allowed net operating income would permit a return of 5.81 per cent or a return of 6 per cent if the company should elect to take advantage of the earnings available to it from the directory advertising and sale source, commensurate with the practice of comparable telephone companies within the state. The commission noted that it did not intend to allow a 6 per cent rate of return. It held that it had the legal right to consider these losses, saying that consideration of them was not a "ridiculous departure from lawful rate making" nor "a direct advance further into the field of management."

Return Sufficient to Attract Capital

The commission concluded that the net operating income allowed by it would permit the company to pay all its fixed

charges and, in addition, have available for common stock dividends an amount sufficient for a 67.6 pay-out ratio. It believed this would be sufficient to allow the company to finance its capital structure, attract the necessary capital for expansion, preserve its integrity in the money market, and otherwise perform its function as a public utility.

The commission said that when it summarizes what the net operating income will do in financing the capital structure of a company it is merely stating that it thinks such net operating income has the capacity of producing that result. It had been suggested that the company was attempting to dictate to management the manner in which it should handle its financial affairs. The commission denied this, saying that while it has the right to consider the results of managerial action in rate proceedings, management can handle operating income as it chooses. When the commission summarizes the possible results of the net operating income allowed, it is merely giving an estimate of the adequacy of that operating income.

Rate Case Expenses

The company had sought to amortize certain rate case expenses over a 5-year period. The commission had disallowed this item because part of the claimed expenses were incurred prior to the test period and the balance were merely estimates for the future. The commission said that it is an established principle in rate regulation to relate actual operating revenue deductions or expenses as recorded on the company's books to actual gross operating income to determine just what the net operating income will be for any given test period under examination.

This amount is related to a rate base to determine the actual return being experienced during the test period. Then the commission must determine the reasonableness of the return being earned by the company during that test period and thereafter make such adjustments as are necessary to provide a reasonable return on the fair value of the company's property for the future.

The commission believed that the company sought complete recovery of those expenses without regard to the periods in which they were incurred or the disbursements made. It said, however, that it still adheres to the rule that it should allow reasonable expenses incurred in the preparation and presentation of a rate case when they are properly entered upon the company's books and are available for consideration in determining the company's earning position during a given period.

Dissenting Opinion

Commissioner McMahan disagreed with the majority of the commission in its determination of fair value, disallowance of rate case expenses, treatment of directory advertising, and method of determining the return allowance. In discussing the disallowance of the rate case expenses on the grounds that they were incurred prior to the test period, he pointed out that it was an absolute necessity for the company to have an appraisal of its property and a study to determine its reproduction cost. Such an appraisal has to be made in advance of the filing of the petition; such a study requires time. Consequently, considerable expense which must be incurred and paid for within a reasonable time.

Directory Losses and Expense

In Commissioner McMahan's opinion, the commission invaded the field of private management by attempting to regu-

late directory advertising. He believed that directory profit or loss has no place in a rate case, although the expense of preparing a directory has. He conceded that the commission has a right to examine the expense of preparing directories and to allow or disallow the same in whole or in part as the facts may justify. However, he did not believe it to be the province of the commission to speculate on the question of whether this should be a profitable adventure for the company. Management should be free to determine whether it will sell directory advertising or just how it will proceed to prepare and distribute its directories.

Return Allowance

The majority opinion said that the return allowed was sufficient to allow the company to finance its capital structure, attract the necessary capital for expansion, and preserve its integrity in the money market.

Commissioner McMahan believed that this constituted a "regimentation" of the utility business, "a complete direction of the state through its commission of the financial affairs" of the company, "usurpation of the power of corporate management and a direct departure from the statutory authority" delegated to the commission in rate making. He believed the commission is required by statute to establish a rate base from proper evidence, and a fair and reasonable return thereon. This, he said, is the full duty and responsibility of the commission, and what the results thereof will do is beyond its prerogative.

It is up to the management, according to Commissioner McMahan, to determine how the return allowed shall be disbursed, and regulation that attempts to designate its disbursement by suggestion or otherwise invades the duties of management. Furthermore, he believes such a procedure penalizes the thrifty and economically managed company, since, in his opinion, it is based upon need rather than a right. Commissioner McMahan concluded by saying that a return should vary as cases vary according to the value, the practices of good business judgment, and the thrift and economy of the company involved. *Re Durham Teleph. Co. Docket No. P-19, Sub 19, August 22, 1956.*

Exchange Area Transfer Not Warranted by Public Need

COMPLAINTS by telephone subscribers seeking service through an exchange in an adjacent area served by another company were dismissed by the New York commission for failure to prove a public need for a transfer of territory. There was no question as to availability of service between the two areas, and the adequacy of existing service was not seriously questioned.

Ordinarily, the commission observed, the most important factor to be considered in connection with the furnishing of local telephone service between two adjacent exchange areas is the community of interest subsisting between them. The standard by which this factor is normally measured is the average amount of toll service originating in each exchange and terminating in the other. Another important factor is the cost of the project in relation to the advantages to be derived from the expenditure.

Only a minority of the subscribers in the territory represented by the complaints were bound to the adjacent exchange area

by a community of interest. Evidence showed that during a recent representative month an average of only 3.68 toll calls were made from the complaining territory to the adjacent area, 73 per cent of the subscribers making 1.22 toll calls and the other 27 per cent placing 7.33 toll calls. Many subscribers in the area were socially and economically attached to the exchange then serving them.

Besides deciding adversely to the complainants on the community of interest question, the commission found that the substantial loss in revenues that the company would sustain by a transfer of franchise would work a serious financial hardship and would have an adverse effect upon its securities and credit. No franchise change was therefore warranted. *Residents of Town of Floyd v. Oneida County Rural Teleph. Co. Case 17778, September 4, 1956.*

Tax Savings Figure in Substantial Underpricing Of Stock Issue to Employees

THE Connecticut commission approved an application by Southern New England Telephone Company to issue 500,000 shares of authorized stock, $25 per value each, under an employees' instalment stock purchase plan. More than two-thirds of the outstanding stock was voted in favor of the project. The proceeds from the offering would be used to finance extensions, additions, and improvements.

It was estimated that 500,000 shares would be sufficient to meet employee requirements for a period of five or six years. Payment to the company, under the plan, would be accomplished by regular payroll deductions authorized by the employees. Interest would be allowed at 3 per cent. At the end of each payment period, each participating employee would take title to the number of shares which his accumulated deductions would purchase. The commission expressed the opinion that the plan could be expected to improve employer-employee relations.

The plan provided for an offering price equal to 84 per cent of market value of the company's stock as of the last day of October of each year during the life of the plan. While the commission thought this underpricing represented "a somewhat higher percentage than would be justified," it nevertheless found that the offering price was not unreasonable, considering that the 16 per cent underpricing would enable both the company and the employees to enjoy substantial federal income tax advantages.

By using 16 per cent as the measure of underpricing, the stock issued under the plan would not fall within the provisions of the Internal Revenue Code as a restricted stock option. The difference between fair market value and purchase price would be taxable to the employee as income in the year in which the stock is purchased, whereas in the case of stock issued to employees at a discount of 15 per cent or less the employee would not be subject to a tax on the difference between the fair market value and the purchase price until the stock purchased by him is sold. The plan provided that the company would assume the employees' withholding income tax liability and in turn the company could deduct from its taxable income the entire 16 per cent discount and thereby secure a tax saving to itself. *Re Southern New England Teleph. Co. Docket No. 9381, September 13, 1956.*

Commission Analyzes Trended Cost, Acquisition Adjustments, Cost of Capital, and Depreciation in Rate Case

THE Pennsylvania commission disagreed with a complainant's view that trended original cost at several price levels, which had been offered by an electric company in a rate proceeding, was "dressed-up opinion."

In determining fair value, the commission noted, it is required to give consideration to original cost and reproduction cost (or trended original cost). In view of the expense of making an inventory and ascertaining present-day and period average cost of all the plant elements, labor, and undistributed costs, a trending process (by which surviving original cost by years of construction) has been devised, which can be transposed to present-day and period average price levels.

The essential feature of such trending process is that the index numbers are applicable to the various elements of material and labor entering into the original construction. This process is much less expensive and serves the same purpose as making a reproduction cost estimate. Trended original cost has the added favorable feature of using actual cost of construction as a starting point, thus eliminating the requirement of estimating unit cost to be applied to an inventory of plant. Where properly done, a trended original cost appeared to be more credible evidence than reproduction cost estimates.

The commission took cognizance of the settled law that in making an estimate of reproduction cost, only property presently used and useful is to be estimated. No estimate of substitute plant could be accepted. That was another reason why properly trended original cost was acceptable; manifestly, it was a trending of original cost of plant surviving and in use today, and not of substitute plant.

Plant Acquisition Adjustments

Two measures of value based on book cost had been submitted, both containing the unamortized balance of the plant acquisition adjustments account. The company sought to justify inclusion of the account by claiming it evolved from arm's-length expenditures which had brought about the present-day integrated system. Complainants argued that a court had previously ruled out consideration of the account as an expense item, and, since it was an intangible reflecting a price on earning power, the commission would be flagrantly disregarding consumer interest if the account were given substantial weight in the fair value determination.

The commission made no findings as to measures of value based on book cost estimates. All measures at price levels higher than original cost inherently included the increment above original cost that was presently contained in the account, the commission pointed out. In giving consideration to trended original cost in addition to original cost, the commission was giving consideration to the unamortized balance in the account.

Capital Structure

The company's capital structure during the period under consideration averaged 54 per cent long-term debt, 20 per cent preferred stock, and 26 per cent common stock equity. Under ordinary circumstances the average capital structure for a reasonable period of time was far more significant in the commission's eyes than capital ratios at any particular date for the purpose of weighing current cost rates.

In this case, however, the company had made significant improvement in its cap-

ital structure since 1953, resulting in an increase in the common equity ratio from 24 per cent to 31 per cent, with a concomitant reduction in senior capital proportions. Under the circumstances, the commission thought it reasonable to give primary consideration to the company's present actual capital structure and also to give some consideration to imminent improvement in that capital structure.

Vintaging Total Capital

To derive a capital structure reflecting "investment at 1954 dollars" the company had vintaged the surviving electric property by year of installation, applied a factor for the relative size of the consumer dollar derived from a cost-of-living index, and thus translated the original property investment in each year into 1954 dollars. The sum of the total surviving property investment in nominal, or book cost, dollars had then been divided into the sum of the investment in 1954 dollars, producing an average current invested dollar factor which was 30.5 per cent larger than the book cost dollar. This factor had been applied to the total book capital, thereby increasing total capital nearly one-third and ascribing the entire increase to common equity capital.

The company's process of vintaging total capital committed to an enterprise, said the commission, failed to recognize that debt and preferred stock investors committed capital in past years when the dollars were worth more than the 1954 dollars. Even if all the effect of dollar debasement was ascribed to common equity capital, there was fundamental erroneous principle in the company's processes; namely, that in trending undepreciated vintaged cost of plant no recognition had been given to the fact that a sizable portion of the surviving plant was constructed with funds accumulated during past years through the depreciation allowance which was a return of capital. The company's process did not recognize this fact, which, in the commission's opinion, would require the capital returned as depreciation in prior years to be vintaged, then trended and used as a contra or deduction from the trended cost of undepreciated plant.

Market Value of Stock

The commission reiterated previous decisions holding that the market value for common stock does not afford a proper basis for determination of capital structure ratios used to weight capital cost rates in computing an average dollar replacement cost of capital. What was contemplated in determination of replacement cost of capital was replacement in the proportions represented in the actual capitalization of a utility, if within reasonable limits of a typical and representative capital structure under which capital was provided at reasonable cost consistent with a good credit standing in the capital markets.

The Pennsylvania regulatory concept, under which economic changes were recognized and given effect in a fair value rate base, afforded common stockholders a large measure of protection against monetary debasement due to inflation, thus minimizing such a risk and obviating the necessity for recognition in the rate of return of the decline in the purchasing power of the common stockholder's original investment. The commission believed that there should not be double utilization of these economic factors to augment the amount of return which a utility would be allowed to earn.

The commission adopted a capital structure range of 45-50 per cent debt, 20 per cent preferred stock, and 30-35 per cent common equity capital for the

purpose of weighing the respective cost rates found appropriate to determine a reasonable composite cost of capital.

Cost of Equity Capital

On the basis that the allowable amortization period for imbedded costs related to refunded bond issues should not extend beyond the original maturity date of the refunded issue, the historical cost for debt was found not to exceed 3.15 per cent. The commission, however, refused to consider the long-term historical cost for common equity capital as pertinent in determining a fair rate of return.

Unlike contractual capital investors, said the commission, common stockholders are given no promise, express or implied, regarding what earnings or dividends they will receive. Since equity is burdened with the residual risks of an enterprise, an equity investment involves a continuous appraisal of risks and uncertainties. A prospective investor in utility equities evaluates the uncertainty which might in the future affect his capital, and views the past only as an indication of future risks and expectations. Current investors appraise only present hazards.

Fair Rate of Return

The determination of a fair rate of return is not the product of any rigid mathematical formula. The commission first found cost of capital that bore an observable direct relation to the objective statistical evidence of typical past capital costs applicable to the risks involved in the operations of the company and other companies, and then applied a separate and distinct judgment allowance for those intangible factors which were not susceptible of statistical proof but which had to be recognized. Such a composite allowance might be restricted somewhat to reflect the fact that rising costs of equity capital are frequently partially offset by declining costs of debt capital, particularly when there is a general market trend away from equities and into fixed dollar investments. The commission found 5.70 per cent to be a reasonable rate of return on the fair value rate base.

Amortization of Depreciation Reserve Deficiencies

The company had sought an allowance in order to amortize deficiencies in depreciation reserve. In connection with any amount by which the reserve for depreciation per books is deficient of reserve requirement, the commission was of the opinion that the company's customers should pay such rates as are required to cover the current cost of serving them, and that the past was past in so far as it applied to any period prior to the test year upon which conclusions were predicated. This was so whether past operating results were favorable to the company or to the customers.

The commission was opposed to any proposal seeking to inject into future rates a segment of past operating results. It would be just as logical, as the commission had pointed out in previous decisions, to pass on to present customers the benefits of past excessive earnings as it was to pass on past excessive depreciation reserve accruals. Conversely, it would likewise be just as equitable to burden present customers with past deficiencies in earnings as to burden them with past deficiencies in depreciation accruals.

Amortization of Emergency Defense Facilities

The company's claim that an allowance should be made for deferred income taxes in order to normalize the tax effect of accelerated amortization of defense facili-

ties was allowed. The commission was convinced that such normalization was necessary to avoid variations in rates that would discriminate against customers in the near future, was practicable because the effects were imminent and certain, and, with equal annual future credits, was equitable because future fluctuations in income tax rates would not cause normalization to benefit or hurt the utility and would treat present and future customers equally.

Tax Depreciation Variance

The company had also claimed an amount to equalize or normalize the tax effect of the excess income tax depreciation allowance over the annual depreciation provisions as determined in a recent study by the company, but the commission rejected such claim. The commission saw no reason for anticipating any drastic change in the composite rate of 3.25 per cent which had satisfied the Treasury Department's requirements for many years. Future changes in the income tax law or tax rates might drastically modify or eliminate remote future tax credit normalization now claimed by the company to be a certain offset to present-day normalization.

The record included some faulty calculations producing the claimed amount of normalization but did not contain any method or plan of a procedure to be followed in carrying out present and theoretical future normalization. Normalization would entail considerable costs in setting up and maintaining adequate records to determinine equitable normalization credits to income taxes in remote future years. The company's claim would not be allowed on the doubtful premise that present tax depreciation rates would actually be reduced an unknown degree at some unknown time. *Pennsylvania Pub. Utility Commission et al. v. Pennsylvania Power & Light Co. Complaint Docket Nos. 16372 et al. July 16, 1956.*

Rule Requiring Competitive Bidding for Securities Revoked

THE District of Columbia commission revoked its order requiring competitive bidding for securities, believing that the circumstances prompting the promulgation of the order no longer existed. The order was made on December 30, 1935 (12 PUR NS 9).

Intercorporate Relationships

When the order was promulgated all of the major public utilities operating in the District of Columbia were subsidiaries of local or foreign holding companies or affiliated with local or foreign corporations. The commission's records indicated that the intercorporate relationships and control over local utilities, particularly by corporations foreign to the District of Columbia, gave rise to suspicion of improper influence in corporate financing.

Present Corporate Relationships

Under compulsion of federal control and regulation over holding companies, the causes giving rise to suspicion of improper influence in local corporate financing have been removed. Now three of the four major public utilities operating in the District of Columbia are independent companies whose stock is held largely by local investors. The fourth is a 100 per cent stock-owned company operating as

an integrated unit in a nation-wide communications system.

Waiver of Competitive Bidding Requirements

The history of commission proceedings relating to security issues since the competitive bidding order indicates no need for the requirement. The stockholders of the four major utilities in the area have pre-emptive rights to subscribe to new stock issues. In every case involving the issue of stock since the competitive bidding order has been in effect, the commission has waived the bidding requirements.

And in several instances these requirements have been waived with respect to the sale of debt securities under negotiated contracts of sale.

Twenty-six states have power to require competitive bidding on security issues, and seventeen have exercised such power in some cases. Only four of these states, however, require competitive bids by rule or regulation. In practice, the District of Columbia commission has considered each application upon its merits despite the order.

The commission has power to impose reasonable conditions on the offer to sell securities. It concluded, therefore, that it would be better practice to consider each application upon the merits rather than under the rigidity of a prescribed rule. In revoking the order, the commission advised that this does not mean that it will abandon any statutory power to exercise its discretion under the facts and circumstances of any particular proceeding. Each authorization, it said, will be based upon the merits of the application, and granted upon such terms and conditions as may be found appropriate. *Re Issuance and Sale of Stocks, Bonds, or Other Evidences of Indebtedness, Order No. 4298, PUC No. 2982, July 31, 1956.*

Abandonment of Less-than-carload Service Found Reasonable

A RAILROAD was granted permission by the Connecticut commission to discontinue less-than-carload service at a certain station upon a showing that the station had not had sufficient usage to indicate a public need for continuance. The commission found that the proximity of an open station nearby and the availability of common carrier trucking service to shippers in the area would reasonably meet the public convenience and necessity for the handling of such freight.

The general rule governing abandonment of service by a public utility, said the commission, is that service may not be discontinued merely because it is unprofitable, so long as a system as a whole shows a profit, unless it is unreasonable to require the continuance of such unprofitable less-than-carload service under the applicable circumstances.

The test of the reasonableness of a proposed abandonment of service is whether the loss resulting from the continuance outweighs the inconvenience the public might suffer from such abandonment. Factors to be examined are the number of people who may be inconvenienced by abandonment, patronage, or lack of patronage by those to whom the service is available, and availability of alternate modes of transportation. *Re New York, N. H. & H. R. Co. Docket No. 9351, August 16, 1956.*

Managerial Discretion Controls in Selecting Type of Securities to Be Issued

THE New York commission authorized Rochester Gas & Electric Corporation to issue 60,000 shares of preferred stock with a par value of $100 per share. The net proceeds would be applied (1) toward reimbursement of the company's treasury for moneys expended from income or from other moneys in the treasury not obtained from the issue of other securities, (2) for construction, completion, extension, or improvement of facilities, (3) for discharging or refunding of short-term obligations—the proceeds of which were, or would be, used for any or all of the foregoing purposes.

The company had concluded that an offering of preferred stock should be made because this was in the sequence in which the corporation had habitually sold securities; namely, starting with common stock, followed by preferred and then debt securities. Another reason advanced was that a common stock issue could not be offered at this time on the "moral ground" that when the last issue of such stock was sold, the stockholders were informed that the company did not plan to sell any common shares in 1956 because, if it had been known that a future issue would follow within a relatively short time, the depressing effect on the market would have been greater than it actually was when the last common stock issue was offered.

The alternative of issuing debt securities did not seem as practical as issuing preferred stock. While the preferred stock market had been showing increases in yields, there had been more pressure on the bond market and, therefore, the increased yields in bonds had been relatively higher than on preferred stocks. A company officer, after consultation with bankers, had concluded that the most appropriate approach to the present market was to proceed with the company's normal pattern for the issuance of securities and make an offer of preferred stock.

The problem of selecting the class of securities to be issued and sold in connection with the financing of capital expenditures, said Commissioner Mylott, speaking for the commission, is primarily a matter for decision by management and, under ordinary circumstances, management's determination should be controlling, providing the terms under which the proposed securities would be issued will not adversely affect public interest. He said that from the standpoint of cost of money, the company undoubtedly could issue and sell mortgage bonds more advantageously, but the evidence presented gave a reasonable indication that the proposal to issue preferred stock at the time was advisable for the reasons stated.

The method selected by the company to dispose of the new securities by a public offering through a negotiated underwriting agreement, also appeared warranted under the circumstances existing at the time. *Re Rochester Gas & E. Corp. Case 17965, September 4, 1956.*

Purchase-Option Holder May Protest Commission Approval of Radio License Transfer

A UNITED STATES court of appeals decided that holders of an option to purchase a radio license, who had instituted a suit in a state court to protect their inter-

ests, had sufficient standing to protest the action of the Federal Communications Commission in granting, without hearing, an application by the owner to transfer the license to a third party. Under the Federal Communications Act, 47 USCA §§ 309 (c) and 405, they were parties in interest, persons aggrieved, or persons whose interests were adversely affected by the commission's action and had standing to petition the commission for reconsideration. The commission, however, had denied their protest and petition to reconsider, for lack of standing under the act.

Although the state courts had jurisdiction to decide the private rights of the parties, while the commission retained ultimate jurisdiction over the license, the option holders' position in the private litigation did not deprive them of standing to challenge the commission's adverse action. The transactions with respect to the license, said the court, bear upon the question whether the public interest would be served by the granting of the application to transfer the license. Through their private interest, therefore, the option holders represented a factor affecting the public interest, even though that interest considered alone was not for the commission's determination.

In addition, the court observed, their standing to protest the commission's action and seek reconsideration was further established by reason of the likelihood of injury to them because of the effect the commission's action might have upon the litigation. In determining the parties' rights respecting the option, the state court might well be influenced by the commission's decision on the owner's application to assign the license to a third party. *Granik et al. v. Federal Communications Commission et al. 234 F2d 682.*

TV Channel Allocation for Commission, Not Courts

A UNITED STATES court of appeals refused to compel the Federal Communications Commission to delay proceedings on applications for VHF television licenses for areas where UHF channels were already authorized, to await the outcome of rule-making proceedings concerning the advisability of preventing intermixture of UHF and VHF channels. Intermixture was being allowed under a valid commission allocation plan then in effect.

The commission had rejected the UHF operators' requests to stay VHF license proceedings, on the ground that it was not in the public interest to preclude the availability of additional television service pending an ultimate decision on "deintermixture" and because grants of applications for VHF channels were consistent with public interest determinations expressed in existing rules and regulations. The UHF license holders asked the court to set aside the commission's action. The court said the commission's determination respecting intermixture was valid. It is for the commission, not the courts, to pass on the wisdom of channel allocation. So long as the commission's action has a reasonable factual and legal basis, a court will not disturb it.

The court held that the commission did not abuse its discretion in denying applications by the UHF licensees to intervene in the adjudicatory VHF license proceedings.

The hearings in those proceedings had been completed and initial decisions rendered before intervention was sought, and the only purpose of intervention was

to argue the same points that had been argued and rejected in a prior rule-making proceeding which terminated in the retention of the intermixture policy. *Coastal Bend Television Co. v. Federal Communications Commission, 234 F2d 686.*

Company Not Liable for Disconnecting Service

AN electric company, which was given judgment in an action by a consumer for compensatory and punitive damages claimed as a result of the disconnection of electric service, won affirmance of the lower court decision on appeal to the District of Columbia municipal court of appeals.

The consumer, a lessee of an apartment, had no agreement with the company for service but was furnished service by the lessor of the premises. At the latter's apparent direction, electricity was disconnected when the lessee refused to sign a contract with the company. The lessee contended that the company's agent insisted that she assume liability for past service as a condition to future service, but this controverted contention was not sustained by the jury. No request, therefore, was made for service.

As a basis for awarding exemplary damages against a corporation for acts of its agent, the court pointed out, the acts must be clearly established and found to be unlawful, partaking of a criminal or wanton nature and characterized by willfulness and malice. But assuming that this test was met, the corporation would still not be liable unless it were shown that an officer or director authorized or ratified the agent's conduct. *De Foe et al. v. Potomac Electric Power Co. 123 A2d 920.*

Other Recent Rulings

Telephone Purchase and Rates. Besides authorizing a telephone company to purchase a telephone utility owned by an individual, the Wisconsin commission granted the company a rate increase at the same time, allowing a rate of return of 6.5 per cent on a net book value rate base. *Re Hillsboro Teleph. Co., Inc. 2-U-4646, August 31, 1956.*

Freight Agencies Discontinued. Reiterating the established principle that the revenue-expense ratio, whether profitable or not, is not the controlling factor in determining an application to abandon a railroad station agency, the Wisconsin commission authorized the discontinuance of two freight agencies and the substitution of caretaker service upon a showing that the public need would continue to be adequately served. *Re Chicago & N. W. R. Co. et al. 2-R-3072, August 7, 1956; Re Chicago & N. W. R. Co. et al. 2-R-3065, August 17, 1956.*

Underpass Cost Allocation. Authorizing a new railroad underpass in connection with a highway widening program, the California commission allocated less than one-tenth of the estimated total cost to the railroad, observing that the existing underpass compared favorably with other such present-day structures. *Re California Dept. of Pub. Works, Decision*

No. 53476, Application No. 35729, July 23, 1956.

Car Routing Order Upheld. A United States district court upheld an Interstate Commerce Commission order prescribing expeditious routing practices to be followed by railroads during a car-shortage emergency, over objections that it was discriminatory and an invasion of management's prerogative. *Daugherty Lumber Co. et al. v. United States et al. 141 F Supp 576.*

Tax Accruals As Working Capital. Large tax accruals held by a telephone company and used for working capital were set off against its full working capital requirement, in a rate proceeding before the North Carolina commission. *Re Carolina Teleph. & Teleg. Co. Docket No. P-7, Sub 24, August 22, 1956.*

Utility Competition with Co-operative. The North Carolina commission ruled that a telephone co-operative has no exclusive territory or right to be free of competition in any particular area, and it ordered a telephone company to serve an area occupied by a telephone co-operative association. *Re Central Teleph. Co. Docket No. P-10, Sub 54, August 22, 1956.*

Accelerated Depreciation. Following an earlier decision (12 PUR3d 254), the Wisconsin commission authorized three utility companies to add to authorized straight-line depreciation charges, for rate-making purposes, the amount of federal income tax reduction occasioned by the use of accelerated depreciation, and as to one company accelerated amortization of defense facilities also, under §§ 167 and 168 respectively of the Internal Revenue Code of 1954. *Re Wisconsin Pub. Service Corp. 2-U-4164, August 10, 1956; Re Lake Superior Dist. Power Co. 2-U-4169, August 10, 1956; Re Wisconsin Power & Light Co. 2-U-4177, August 7, 1956.*

"Agricultural Commodities." Setting aside an Interstate Commerce Commission cease-and-desist order against a motor carrier hauling processed fruits and vegetables, a federal court held that such goods were exempt agricultural commodities under the Interstate Commerce Act and not manufactured products, since they retained a continuing substantial identity through the processing stage. *Home Transfer & Storage Co. v. United States et al. 141 F Supp 599.*

Experimental Operation Order. The Missouri supreme court ruled that a commission order requiring a transit company to continue operating a segment of its system under specified conditions for a 90-day period, in order to provide additional evidentiary data with which to determine an abandonment proceeding, was not unreasonable and did not invade the province of management. *Missouri ex rel. St. Louis Pub. Service Co. v. Missouri Pub. Service Commission et al. 291 SW2d 95.*

Late Filing on Appeal. Striking a belatedly filed transcript and consequently refusing to consider an appeal on the merits, the Alabama supreme court affirmed a lower court decision and declined to remand the cause to the commission for further proceedings, pointing out that the court has no authority to remand to the commission except as incidental to an appeal on the merits where the record shows that the cause should have been remanded by the lower appellate court. *Baggett Transp. Co., Inc. et al. v. Alabama Pub.*

Service Commission et al. 88 So2d 687.

Uniformity of Carrier Rates. The Colorado commission, in granting an application to increase a motor carrier's class rates between certain points, stated that while uniformity in rates between carriers serving the same points is the first principle of rate regulation, such uniform rates must be shown to be just, reasonable, and sufficient. *Re Martin (Flagler-Denver Truck Line), Case No. 1585, Decision No. 45881, May 29, 1956.*

Dedication to Public Service. The California commission held that dedication to public service could be found to exist where one owning or operating facilities normally found in the provision of a public service had, by open and unequivocal acts or admissions, manifested an intent to devote such facilities to the service of the general public. *Pierce v. Pomona Valley Water Co. et al. Decision No. 53145, Case No. 5550, May 28, 1956.*

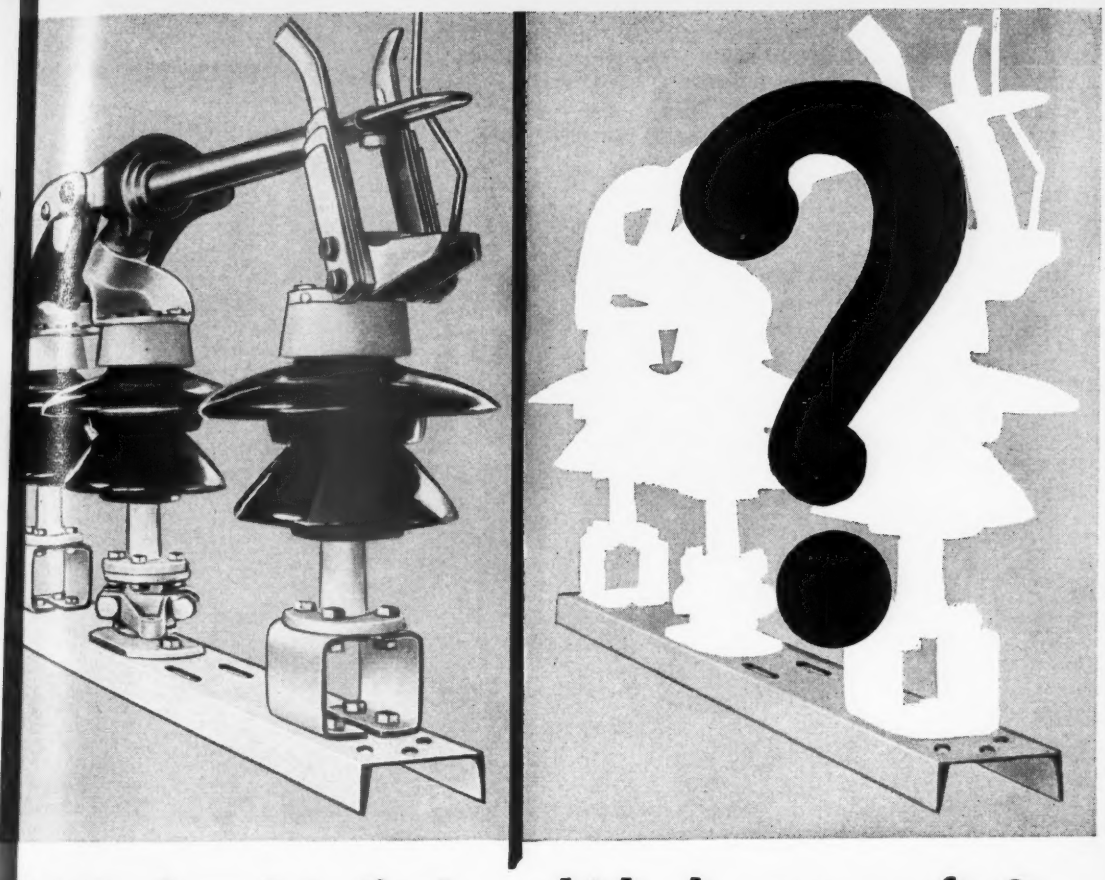
Transit Fare Increase. The Connecticut commission authorized a transit company to increase fares, and considered reasonable the operating ratio of 97.9 per cent which the increase would produce. *Re Silver Lane Bus Line, Inc. Docket No. 9337, June 13, 1956.*

Service Outside Dedicated Area. The California commission refused to require a water company to serve persons located outside the company's dedicated area, notwithstanding that they were gravely in need of service and had made diligent efforts to obtain water from all possible sources, where the only water main outside the company's dedicated area was owned by the federal government and was used by the company to supply water to federal military units on a temporary and restricted basis. *Malibu Vista Improv. Asso. v. Malibu Water Co. Decision No. 53239, Case No. 5739, June 12, 1956.*

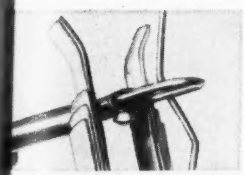
Return for New Utility. The Wisconsin commission considered a return of approximately 4.6 per cent on a rate base equivalent in amount to the estimated cost of a proposed water and sewer plant, less contributions in aid of construction and plus an amount for working capital, reasonable for a newly certificated municipal water and sewer utility. *Re Village of Mishicot, CA-3423, June 4, 1956.*

Freight Rate Reduction Application. The Wisconsin commission dismissed an application for authority to reduce intrastate railroad class rates between certain points on iron and steel scrap, where present rates had not been shown to be unreasonable and the proposed reduction, if granted, would have given an undue and unreasonable preference to scrap-iron dealers at those points as compared with dealers located at other points. *Wisconsin Waterways & Rail Traffic Asso. v. Ahnapee & W. R. Co. et al. 2-R-2993, May 23, 1956.*

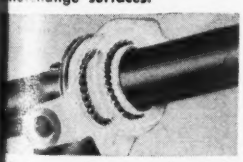
Station Revenues Factor. Station revenue is a factor considered, pointed out the Wisconsin commission in authorizing a railroad to substitute caretaker for agency service at a station, in determining whether a particular service can be afforded without imposing an undue burden upon the carrier out of proportion to the inconvenience and hardships that the public would encounter by a reduction in service. *Re Chicago & N. W. R. Co. 2-R-3002, May 23, 1956.*



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THE PIEDMONT NATURAL GAS COMPANY'S expansion in and around Greensboro, N.C. requires trench excavation under many different types of digging conditions. This Cleveland 92 "Baby Digger," owned by Bill Gray of Kernersville, N. C., is shown cutting a relatively short and easy run (2,000 feet) for a main extension in a new housing subdivision.

But not all of Piedmont's jobs are as easy as this. Gray gets his share of the tough digging jobs too—wet and sticky soils, rocky ground, narrow rights of way with plenty of obstructions, a wide variety of trench width and depth specifications—yet he digs them all successfully with his dependable Cleveland. Shown at the right is a list of some of the features of the Cleveland 92 "Baby Digger" which Gray considers particularly helpful in trenching work for the gas industry.

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Industrial Progress

phone Industry Faces Future Of Unparalleled Growth

l growth records of the Ameri- can telephone industry were y shattered in the decade of dy- c expansion which followed the of World War II (1945-1955). outlook for continued plant ex- ion and new business acquisition ugmented by unprecedented op- nities in the form of technical lopments being made available to industry.

ever before in the history of the stry have "sales" and "merchan- g" taken on so many different attractive forms. Telephone busi- today is becoming an *appliance* ness just as surely as is the elec- utility industry (with its multi- of household gadgets) and the ndustry (with its somewhat com- ive list of ranges, refrigerators, . Telephone "appliances" being noted include not only supplemen- ervices such as household and ness extensions, special ringing es and multiple subscriptions, but special services such as the ds off" telephone which can be without holding the receiver, telephones, hearing aid tele- es, automatic secretaries and an- ing devices, etc.

o accommodate the additional ness expected and the new reve- producing services, it naturally ws that inside and outside tele- e plant must not only be ex- led but also improved technically. chboard equipment, toll tech- es, billing and other routines are g stepped up to accommodate the ling load of subscriber traffic and ected new business.

the following pages are included ted excerpts from the summar- programs of a number of Inde- lent and Bell System telephone panies:

American Telephone and Telegraph Company (New York, N. Y.). By mid-year 1956, the Bell System had 47,773,000 telephones. It is estimated that, barring unforeseen developments, the 50 million mark should be reached early in 1957.

On the basis of figures in recent years the increase in number of telephones is progressing at the rate of approximately 3,000,000 telephones each year.

By the end of 1956, 2½ million subscribers will have direct dialing, which can be used to contact some 18 million telephones in the country. This direct dialing system started in Englewood, New Jersey in 1951. It is expected that direct dialing will be available throughout the United States within the next 10 years.

With respect to construction, record sums of $2,100,000,000 will be spent in 1956. Former President Craig, (now Chairman of the Board), has stated that construction expenditures in 1957 will be just as big.

With reference to network television, which is now 8 years old, there are presently 73,000 channel miles of Bell System facilities, which link 404 stations in 274 cities. About 90 per cent of these channel miles are presently equipped for color television, and over 200 stations in 141 cities are now in the television color network.

Separate estimates are given in the following pages for three Bell System companies:

Bell Telephone Company of Pennsylvania

Diamond State Telephone Company (see Bell Telephone Company of Pennsylvania)

New England Telephone & Telegraph Company.

The Bell Telephone Company of Pennsylvania (Philadelphia, Pa.). The tabulation at the bottom of this page reflects pertinent data with regard to the 1957 construction program for both Bell Telephone Company of Pennsylvania and Diamond State Telephone Company which the former also operates.

The Diamond State Company is 100 per cent dial whereas the Bell Telephone Company of Pennsylvania will be about 92 per cent dial at the end of 1957. The last magneto exchange operated by Bell in Pennsylvania will be replaced by dial in December, 1956. An important item in the 1957 construction program in Pennsylvania is the construction at Pittsburgh of a 12-story headquarters building for the western area. This building, now under construction, will be completed early in 1958 at a total cost of $7,500,000.

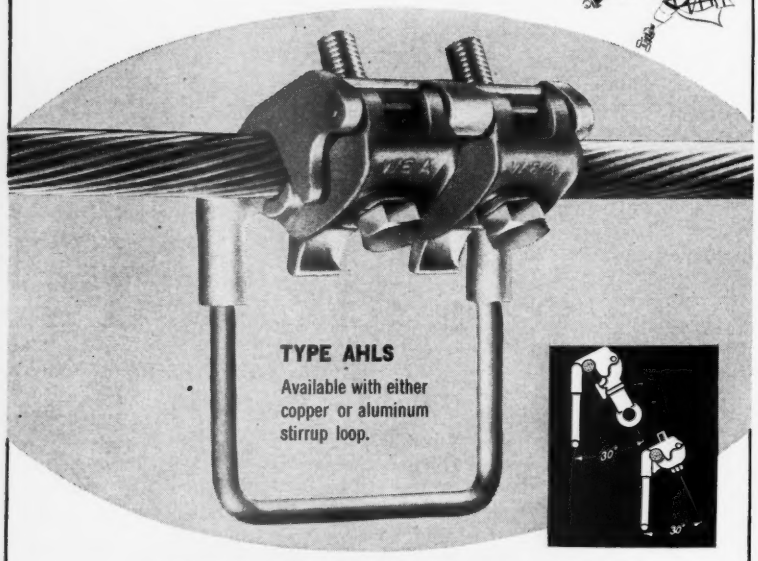
BELL TELEPHONE COMPANY OF PENNSYLVANIA
DIAMOND STATE TELEPHONE COMPANY

	Bell of Penna,	*Diamond State*
Total Gross Construction (Millions $)	118.7	6.8
Gain—Main Telephones	80,500	6,000
Total Telephones	199,500	13,000
Increase in Toll Messages (Millions)	8.3	0.6
Intertoll Trunks over 25 miles *Added* during yr.	626	16
Exchange Cable *Added* (Million Conductor Ft.)	6369	531
Lines of Dial Equipment *Added:*		
For Growth	156,252	6,090
For Mechanization	62,260	0

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* LARGER CONTACT AREAS
* LONGER TROUBLE-FREE SERVICE

CABLE RANGE: From #8 to #954MCM with four clamp sizes. Stirrup loop diameters (both aluminum and copper) ... #4, #1, 1/0, 2/0, 4/0 and ½".

ONE PIECE "hook-over" clamp body, cap and eye are high-strength cast aluminum alloy. Stirrup loops are deep-serrated and compression-bonded into clamps... can't pull out! All component parts are triple-tested for rugged dependability!

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INDUSTRIAL PROGRESS

(Continued)

California Interstate Tel Company (San Bernardino, For the fiscal year ending Ma 1957, this independent compan to make capital expenditures proximately $1,750,000 to co plant for serving an estimated of 2,500 new subscribers. The single item will be the installa 48 channels of cable carrier to on 40 miles of existing toll ca tween San Bernardino and Vict

California Water & Tele Company (San Francisco, For the year 1957 California & Telephone Company plans struction budget of approxi $14,000,000, of which over $1 000 is required by the Telepho vision. Officers estimate that new telephones will be installe company plans to convert thr changes serving 6,000 telepho tions to dial operation next When these conversions are pleted 97 per cent of the tele in service will be dial operate the end of the coming year Cali Water & Telephone Company to have a net plant investment o 000,000 in plant facilities. O sum about $45,000,000 will b cated to the Telephone Di which will serve about 121,00 phones.

Carolina Telephone and graph Company (Tarboro, N For the year 1957, Carolina phone and Telegraph Company an overall gross expenditure of 725,000. The principal item ($5 000) is earmarked for outsid change plant designed for 250 urban and rural projects in ad to several hundred minor pro New toll facilities are down fo 870,000 (to accommodate 200 cuits) and station development pected to take $2,187,000 (fo installation of 44,000 stations w estimated net gain of 11,000 st including PBX). New dial equip is listed for $1,400,000 (about lines and terminals). New toll sw ing equipment will get $1,200 Other expenditures will inc Land, $110,000; buildings, $658 and miscellaneous, $300,000. On cial feature will be the installati a microwave system between M Mount and Fayetteville, app mately 100 miles (estimated to $1,500,000).

Chenango & Unadilla Telep Corporation (Norwich, New Y

(Continued on page 40)

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MARTINSVILLE, VIRGINIA

This fast-growing independent company in central New York state expects to continue the rapid rate of improvement and construction which it has experienced ever since the end of World War II. It is planned that gross construction for the year 1957 will be approximately $1,000,000. It is hoped that the major portion of the main program will be completed by 1960 excluding possible acquisitions.

Citizens Telephone Company (Decatur, Ind.). This Indiana telephone company expects to make estimated additions for 1957 totaling a quarter of a million dollars with respect to three affiliated companies:

Citizens Telephone Company ...	$ 90,000
Argos Telephone Company	145,000
Nappanee Telephone Company .	15,000

The Columbia Telephone Company (Columbia, Pa.). This growing independent company located in eastern Pennsylvania has a 3-year plan embracing the calendar years of 1956, 1957 and 1958. It is estimated that a quarter of a million dollars for each of those years will be expended for new plant, inside and outside, and incidental construction.

Commonwealth Telephone Company (Dallas, Pa.). Including its former subsidiaries, Pennsylvania Community Telephone Company and Blakeslee & Fern Ridge Telephone Company, which are now merged, this company will have expended $1,977,100 on construction for the first half of 1957 and $2,189,100 in the second half of 1957. These include actual expenditures for both labor and materials. Much construction work has already been undertaken on the dial conversions which will be completed in 1957, namely, for the exchanges of Towanda, Pen Argyl, Millersburg, Kirkwood, and possibly Ba of which are in Pennsylv nancing plans include going the open market to sell some 000 of securities in 1957. Al items are to the benefit of subscribers and normal stat It is anticipated that withou ditional acquisitions, teleph tions in 1956 will exceed 6

Community Telephone C of Wisconsin (Black Riv Wis.). Located in the Black River Falls area of W the Community Telephone is experiencing a steady in demand for service impro The company plans to spend 000 during the coming year for expansion. This will inc conversion of 9 exchanges to erations and all associated w nected therewith.

Conestoga Telephone graph Company (Birdsbor This independent company h eted a total of $240,000 for construction program. The items are as follows:

Central office equipment	
Buildings	
Station apparatus	
Pay Booths	
Pole Lines	
Cable	
Office Equipment	
Vehicles and work equipment .	

The Conestoga system ha exchanges and operates 12,5 phones. It is 100 per cent di

The Eastern Indiana Te Company (Winchester, Ind. Indiana company has a 19 struction and improvement totaling $427,207. The main of the plan include new 19 g pair loaded toll cable with r from Winchester to Mun

(*Continued on page 4*

ALLEN KANDER

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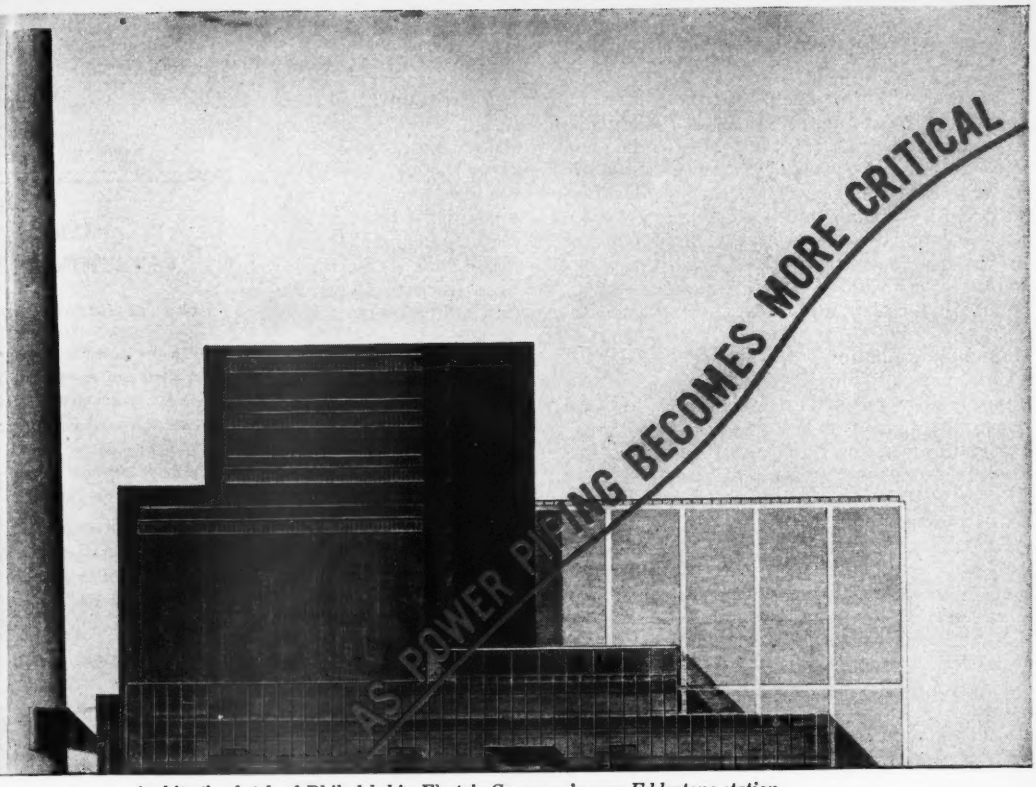
TELEPHONE NUMBERS: 45101 - 45111 - 45121

— OTHER EXCHANGES —

CAMBRIDGE CITY	FARMLAND	LOSANTVILLE	REDKEY
CENTERVILLE	FOUNTAIN CITY	LYNN	RIDGEVILLE
DUNKIRK	GREENSFORK	MODOC	SARATOGA
ECONOMY	HAGERSTOWN	PARKER	WILLIAMSP

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Architect's sketch of Philadelphia Electric Company's new Eddystone station

Kellogg's High Alloy Fabrication Keeps Pace

ed to operate at 5000 psi at throttle valve, and 1200 F., o. 1 at Philadelphia Electric ny's new Eddystone station ed critical problems in the se- of an alloy for supercritical e piping, and in techniques for ing heavy-walled sections of by in the shop and in the field. e than a year ago, The M. W. Company presented a com- sive program to the Philadel- lectric Company for selecting ble alloy, and since then has orking closely with this public and other prime contractors completion of the project. rous materials were studied, , tested, heat treated, and ted at Kellogg's Jersey City metallurgical laboratories. After many months of extensive and intensive work, Type 316 Stainless was selected. M. W. Kellogg has already perfected welding techniques, and is now continuing tests on this alloy and several other compositions, including strain aging for 1000 hours and 10,000 hours at 1300 F., to accumulate other data.

While this is the first time that Type 316 will have been used in power plant service for temperatures as high as 1200 F., and pressures as much as 5000 psi, it is by no means Kellogg's first experience with Type 316 or other stainless steels. For example, M. W. Kellogg recently undertook metallurgical studies and research for another large public utility prior to its selection of Type 316 for use at 1100 F. and 2400 psi. Kellogg also has done considerable fabrication of main steam lines and turbine leads, using Type 347.

The M. W. Kellogg Company welcomes the opportunity of discussing future power piping requirements with consulting engineers, engineers of power generating companies, and manufacturers of boilers, turbines, and allied equipment.

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POWER PIPING—THE VITAL LINK

miles) and will provide toll circuits from the Winchester toll center and also circuits for tributaries into Muncie, Ind., at a total cost of $185,000 for labor and material. Other items in the program include local exchange cable for 9 other exchanges (total cost for material and labor—$112,782); and new central office equipment (total cost for plant and labor, $129,425).

Florida Telephone Corporation (Ocala, Fla.). This company is presently engaged in the largest construction program in its history—now in the third year of a five-year program. Construction for the years 1953 through 1955 totaled $6,115,005. It is estimated that approximately $12,000,000 will be spent on expansion and modernization in the three years 1956 through 1958, at which time the company's system will be 100 per cent dial and all exchanges on the new 2-5 numbering system for operator and customer long distance dialing.

The company's plant investment and invested capital has increased over 700 per cent over the last ten years and at the end of 1956 will approximate $13,000,000. Invested capital has increased over 600 per cent in the same period as the result of continuous financing since the War. Twenty-one separate financing transactions consisted of 10 bond issues, 2 preferred stock issues, and 9 common stock issues. Number of common stockholders has increased by the phenomenal percentage of over 1500 per cent.

The company's telephones in service have increased from 7,642 at the end of 1945 to approximately 32,000 as of September 1, 1956, an increase of 24,358 or 319 per cent. An estimated 22,000 additional telephones are expected to be added by the end of 1960 at the present rate of expansion and development. The company operates 18 exchanges and 5 sub-exchanges in eight counties in Central Florida—one of Florida's most rapidly growing areas. The company has introduced and established an all inclusive microwave radio relay toll network in its territory as a means of expanding its toll network in a rapidly growing area. It is also introducing customer long distance dialing on a regional basis, to be expanded later to a state and nati basis.

(*Continued on page* 45)

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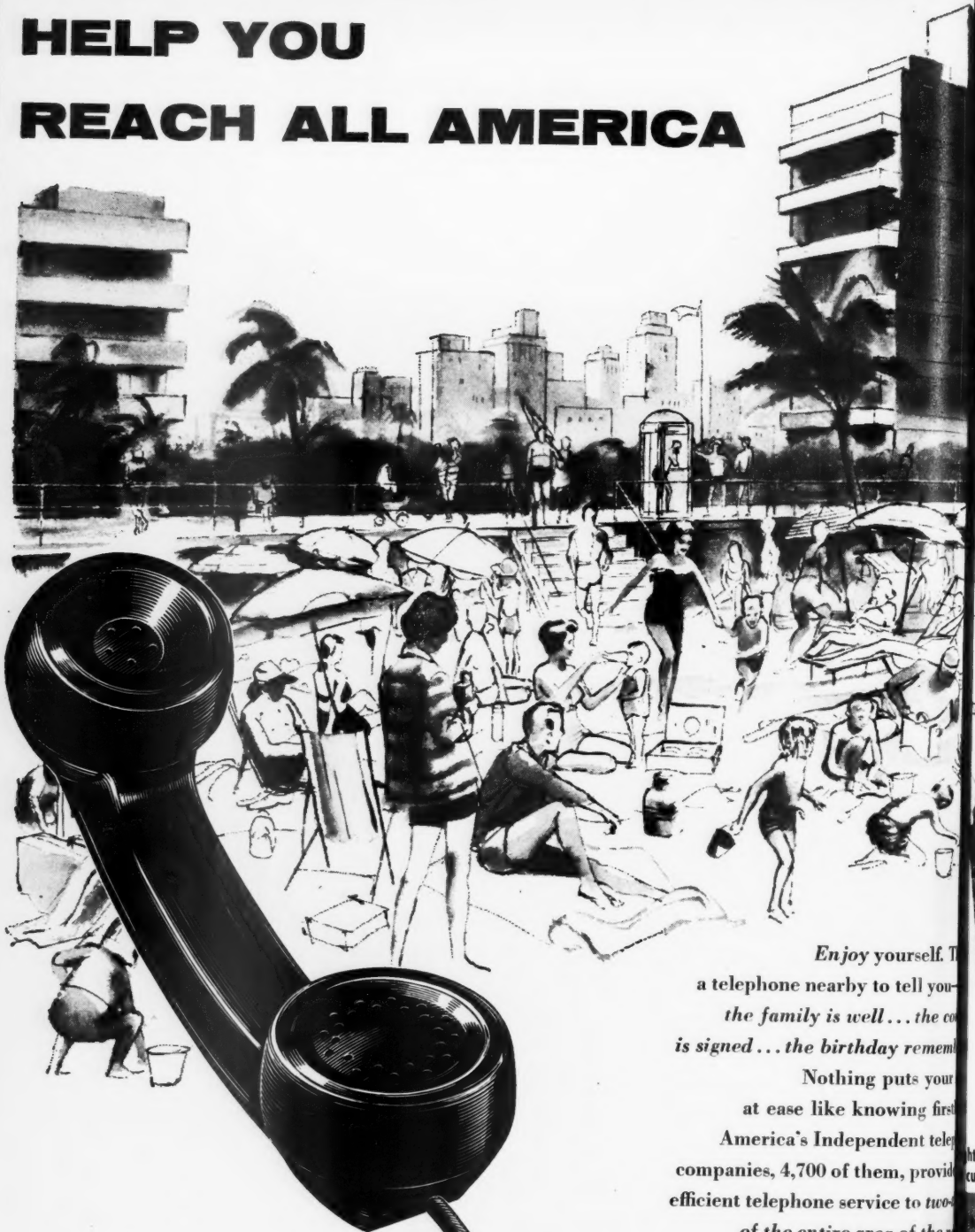
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eral Telephone System (New N. Y.). A brief outline of the pments and activities of this— rgest of all independent tele- phone company systems—is contained in the feature article entitled "Planning for Modern Independent Telephone Service," by Donald C. Powers, president of the General Telephone Corporation, which appears in this issue (antepage 570). An overall summary of preliminary

TELEPHONE SUBSIDARIES—GENERAL TELEPHONE SYSTEM
(Dollar Amounts in Thousands)

	Gross Construction	*Estimated Telephone Gain 1957*	*Estimated Telephones Dec. 31, 1957*	*Telephone Plant Dec. 31, 1957*
Telephone Co. of California	$ 69,819	117,400	934,300	$328,553
est Properties	18,959	21,900	263,800	87,960
Properties	9,959	15,800	316,700	77,030
Properties	12,114	16,900	301,000	78,740
n Properties	11,555	12,800	219,900	65,899
roperties	9,712	12,700	182,600	57,476
Telephone Co. of Pennsylvania	6,759	9,800	197,600	53,601
st Properties	7,111	11,800	148,400	37,660
sin Properties	5,354	7,200	149,500	34,934
Telephone Co. of Kentucky	3,197	5,400	84,600	24,024
Telephone Co. of the Northwest	2,308	4,200	67,600	21,828
West Properties	4,897	4,400	86,400	20,986
ork Properties	1,928	1,800	56,800	16,003
tal Domestic	163,672	242,100	3,009,200	904,694
Foreign Properties	3,810	5,000	27,500	12,000
tal System	$ 167,482	247,100	3,036,700	$916,694
1956 Estimate	$ 149,898			



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1957 construction program is as follows:

Home Telephone Company of Ridgway (Ridgway, Pa.). This company's estimated expenditures for plant expansion for 1957 is $450,000. The gain for the same period is expected to be about 360 main stations. New line extensions for next year will be approximately 20 miles.

Inter-County Telephone & Telegraph Co. (Fort Myers, Fla.). The very rapid development of south central and southwest Florida is reflected in the tremendous growth and expansion of the Inter-County Telephone and Telegraph Company which provides communication in the fast growing counties of Lee, Collier, Monroe, Hendry, Glades, St. Lucie, Okeechobee, Highlands, Hardee, Polk, DeSoto and Charlotte.

This company has long distance toll centers at Fort Myers and Avon Park which have joined the nationwide operator toll dialing network, with plans for a third at Arcadia to join this network in the near future.

Inter-County, which pioneered in customer direct distance dialing, has this service available in 15 of its exchanges, those at Fort Myers and Avon Park being the first such systems to be installed in the southeastern United States.

The Inter County Telephone System is at present operating about 28,000 telephones in its twelve county service area. In 1955 the company experienced a gain of 18.5 per cent over stations being served at the end of 1954. In 1954 and 1955 the Inter County System had the largest telephone station gain percentagewise of any other telephone company in Florida. The Inter County Company expects to have about 30,000 telephones in service by the end of 1956.

In 1946, there was a monthly average of 1,828,350 local calls handled by all Inter-County exchanges, while in 1956 this local monthly calling rate has risen to over 6,000,000. Long Distance business in all nineteen exchanges has expanded in the same manner. A monthly average of 50,123 Long Distance calls was accepted in 1946, while at present th about 250,000 such calls bein dled each month.

The Inter County Telephon tem has extended its servic many rural sections in south and southwest Florida in t several years and has helped fashion to stimulate and develo remote areas. In order to brin ice to rural areas that have bee out telephones, the Inter Company experimented an neered in rural subscriber ele carrier which made such proje nomically feasible.

In order to meet the huge de for its services in 1956, the Co provided the largest budget in tory. Over a million and a ha lars is being spent to expand a prove present services and to a eral new ones. A new three building addition is now under Fort Myers and when complet greatly increase both local ex and Long Distance capacity f Fort Myers area. Also a large cable expansion program is way in the Fort Myers area t

Serving the Growing Southwest

The Southwestern States Telephone Company provides local and lon distance telephone service to various sections of Arkansas, Louisiana Oklahoma, and Texas areas which have experienced steady growth fo the last decade. To meet the constantly increasing demand for telephon service this company completed in the year 1955 its most extensiv expansion program and has undertaken an even broader schedule of ne construction for 1956 and 1957.

THE SOUTHWESTERN STATES TELEPHONE COMPAN

300 MONTGOMERY STREET

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e needed additional facilities is fast growing city. Other central office and cable expansion programs are underway in other County exchanges.

Inter-County Telephone System will provide two other very new services in 1956 to its customers in Central and Southwest Florida, being microwave radio relay facilities and mobile telephone service. A half million dollars has been allocated by the Inter County Company for the construction of three microwave radio relay networks (112 miles) to supplement its Long Distance facilities. The demand for the County's Long Distance service in 1955 was about 30 per cent greater than in 1954, and it is expected that the Long Distance calling will increase at a greater rate in the latter part of 1956. To provide the necessary Long Distance facilities to meet these huge increases in an economical manner, the Inter County Company decided to construct three microwave radio relay systems which will provide very high quality circuits. Microwave radio relay stations and towers will be constructed at seven locations. The microwave systems are expected to be in operation by the latter part of 1956.

Sufficient demand for mobile telephone service in automobiles and other vehicles prompted the Inter-County System to make provision for this type of telephone service in its 1956 construction and service improvement program. A mobile radio telephone station will be installed at Fort Myers with two radio telephone channels initially in service. The area to be covered by this service will extend in a radius of approximately 40 miles from Fort Myers.

The Inter County Telephone System is rapidly completing its 1956 construction and improvement program and is looking forward to a record year of service. J. N. Johnson, president, said the company has great confidence in the south central and southwest Florida it serves, and will continue its best efforts to keep pace with the fabulous growth of this territory.

The general operating statistics of this company are as follows:

Miles of pole lines	1,821
Miles of toll channels	14,322
Sheath miles of underground and submarine cable	8,207
Sheath miles of aerial cable	7,659
Circuit miles of aerial wire	9,860
Channel miles of rural subscriber electronic carrier	700

Telephone plant investment has grown from $2,067,951 in 1940 to $9,377,826 in 1955. In dollar value 97.38 per cent is ten years old or less, while 63.51 per cent is five years old or less.

Lee Telephone Company (Martinsville, Va.). This company operates 14 dial exchanges in Virginia and North Carolina, all connected with its own toll lines. The number of telephones has grown from 1,857 in 1930 to 21,351 as of June 30, 1956. Its 1957 construction program will consist of intertoll dialing equipment to be put into service in April, additional toll circuits, additional central office equipment, cables and pole lines, rural circuits and telephones. This program will amount to approximately $600,000. It is now considering customer toll dialing equipment and additions to two of its office build-

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LEXINGTON, VIRGINIA

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ings. These two projects will amount to approximately $300,000.

Lexington Telephone Company (Lexington, Va.). During the year 1957, the Lexington Telephone Company plans to spend approximately $275,000, on construction. A large portion of this construction will be in the Brownsburg, Virginia, area where land will be purchased on which to erect a new telephone building to house the proposed dial equipment. All of the existing lines in the area must and will be replaced and additional cable and line facilities will be provided for applicants in the rural area. All of the stations will be converted to dial.

The company also plans miscellaneous line extensions throughout the area. There will be several miles of additional cable changed out or added in the Buena Vista and Natural Bridge, Virginia exchange areas. Additional central office equipment will be added in the Glasgow exchange and an expansion of the P.B.X. equipment of a large industrial plant will be made. The Lexington, Buena Vista, Natural Bridge and Glasgow exchanges will be converted to the "2-5" numbering system. A large portion of 1957's expenditure will be used in rehabilitating the outside plant of the Lexington and Buena Vista exchanges. It is anticipated that the overall construction, rehabilitation and changes will allow for a 600 subscriber gain during the year of 1957.

The Lincoln Telephone and Telegraph Company (Lincoln, Neb.). This company will engage in an extension and improvement program in 1957 which will aggregate $5,500,000. Eleven exchanges will be converted to dial operation and 16 new ings will be erected. Two of buildings will be at Lincoln, area headquarter exchanges o hoo and David City, and 12 at unattended CDO exch anges

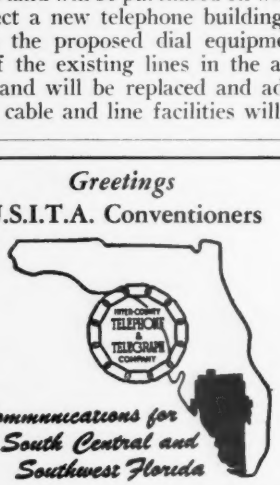
Direct distance dialing will augurated in Nebraska fro changes of Beatrice, Waho David City to about half th phones in the state.

Installation of two micr radio systems is contemplated company in addition to the two has in service at Lincoln and ings. New microwave instal will be for toll message facili tween Lincoln and Beatrice a government use elsewhere. O long distance circuits by wi carrier will also be added.

Local facilities will be expan serve an estimated station gro 4,500 during the year by 6,6 additions and by cable extensio additions of over $1,000,000. eral subscriber line carrier s for rural service will be instal

The Lincoln company is th est independent telephone co in Nebraska. A $37,000,000

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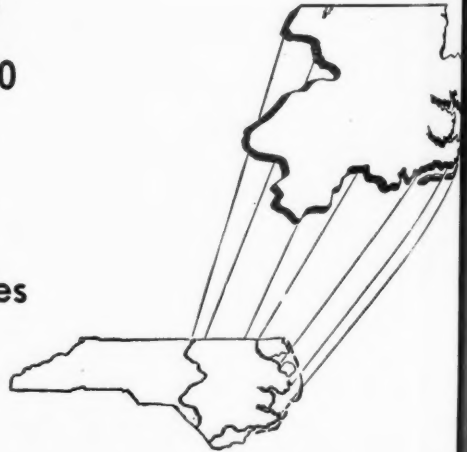
EXCHANGES: 111

SERVICE: better than 96% dial

AREA: all or parts of 41 counties

STOCKHOLDERS: 3,300

EMPLOYEES: 2,200



CAROLINA TELEPHONE and TELEGRAPH COMPANY

General Offices—Tarboro, N. C.

it has doubled its investment in ast ten years and now serves one-fourth of the half million ones in the state. Eighty per f its stations are dial.

n County Telephone Com- (Lebanon, Ore.). This com- construction budget for 1957 proximately $200,000. This nt will principally be spent as s: (1) To increase and expand es to serve an estimated addi- 200 subscribers and to upgrade t subscriber service; (2) To uct a new 14 mile two circuit, arrier channel toll lead between on and Brownsville; (3) To automatic ticketing and timing ment, "SATT," at Lebanon to subscribers to dial calls direct- and between Lebanon, Sweet and Brownsville and from exchanges to the Bell toll cen- Albany and its tributary ex- es. This installation will be eted on October 15, 1957.

w England Telephone and raph Company (Boston,). Gross construction program for the current year for the New England Telephone & Telegraph Company is estimated at $116,000,000, which includes a net construction of $78,400,000. The company expects to serve 67,000 additional subscribers.

North Carolina Telephone Company (Matthews, N. C.). This company has 7 exchanges and operates in a territory in the south central portion of the state, and has in service approximately 3500 stations and is completely automatic dial operation. It is currently in a construction program of approximately $1,000,000 extending through 1958, and this program calls for a considerable portion of the investment in its own toll facilities connecting its various exchanges and automatic toll ticketing. Upon completion of the program, it is expected to serve an additional 1,000 stations.

North State Telephone Company (Highpoint, N. C.). This rapidly growing independent telephone company, which operates exchanges in High Point, Thomasville and Randleman, North Carolina, plans to spend about $500,000 for expansion of its plant and system during the year 1957 and expects to gain some 1700 new subscribers, bringing the total telephones in operation to about 30,000 at the close of the year.

Northern Kansas Telephone Company (Nortonville, Kansas). This telephone company which operates in the northeastern area of Kansas, plans to convert 12 small exchanges to dial as part of its 1957 construction program. It is rebuilding and extending lines totaling 930 miles at an expenditure estimated at $1,300,000. It serves 3,400 customers.

Northern Ohio Telephone Company (Bellevue, Ohio). A feature article by the president of this cor-

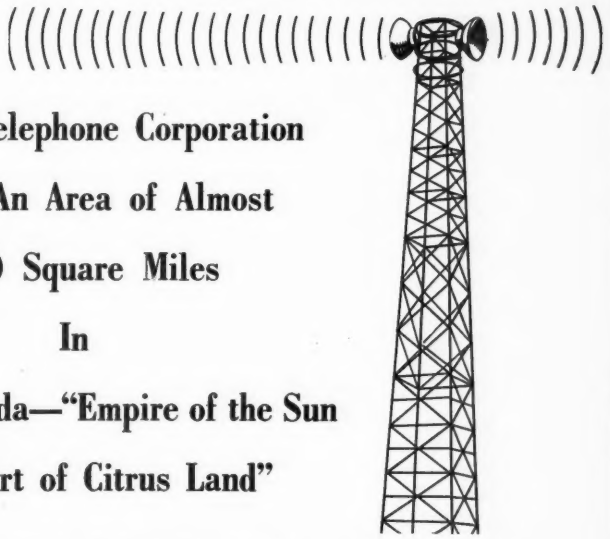
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poration (William C. Henry) under the title "Problems of the Small Telephone Company" appears in this issue (antepage 589).

Northwestern Telephone Company (Freeport, Ill.). This independent telephone company serves the following exchanges in Illinois: Apple River, Cedarville, Coleta, Dakota, East Dubuque, Elizabeth, Hanover, Lena, McConnell, Orangeville, Pearl City, Polo, Scales Mound, Stockton and Warren. During the coming year it plans to convert 13,500 stations in Freeport and 475 in Cedarville. Plant additions and rehabilitations together with new building, just completed, and central office equipment will be in excess of $2,000,000. Freeport has 6,000 lines and 12,000 terminals, with operator dialing.

Peninsular Telephone Company (Tampa, Fla.). During the current year, this company's construction budget amounts to $19,800,000 and its estimated net station gain is 24,500. The budget will be carried through according to schedule and station gain to date exceeds 15,000 which indicates that for the year it will exceed the budget substantially, likely reaching a figure of approximately 28,000 stations. The company's present calculations indicate that its construction budget next year, while not yet set up, will amount to $20,000,000 and that its net station gain next year should be not less than 25,000 stations.

The Peoples Telephone Company (Butler, Pa.). This steadily expanding independent telephone company in western Pennsylvania plans to spend an estimated $1,200,000 in gross additions to plant for the coming calendar year. There is also estimated a 1200 station gain for the same period.

Rochester Telephone Corporation (Rochester, N. Y.). According to present plans, the gross construction program for the year 1957 will be at a record high in the history of the Rochester Telephone Corporation. To meet the continuing demand for service, and to carry on a dial conversion program, the compa planning for the year 1957 co tion expenditures amounting t ter than $10,000,000. It is ex that plant investment at the e 1957 will approximate $72,0 This compares with plant inve of $25,700,000 at the end of The company's dial conversio gram is progressing and it e to cut into service during 195 eral dial offices replacing pr operated manual offices. The pany forecasts that the dema telephone service will conti about the same level during th 1957. It is expected that about new telephones will be added the year, bringing the total tele in service as of December 31, to approximately 266,000. Thi pares with the total number o phones in service at the end o of about 139,000.

Rock Hill Telephone Co (Rock Hill, S. C.). While det the 1957 program of this co were not available at this p considerable additions to the

CALIFORNIA WATER & TELEPHONE COMPANY — INDEPENDENT TELEPHONE ASSOCIATION OF THE STATES

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And like the nationwide independent industry, we are growing at a tremendous pace. Here are some of our accomplishments during the last ten years:

1. *Our employee strength has almost tripled. (From 500 to 1,400.)*
2. *Our telephone plant investment has increased by 1000%. (From $3,000,000 to $33,000,000.)*
3. *We now have five times as many subscribers as ten years ago. (From 21,000 to 104,500.)*
4. *We have installed almost a quarter of a million miles of telephone wire. (From 38,000 to 281,500 miles.)*
5. *Our annual telephone revenues have gone up 640%. (From $1,417,000 to $10,496,000.)*

To make these gigantic strides forward, and to stay abreast of the latest developments in telephony has necessitated a great capital expansion program. Since 1946 the number of common stockholders of California Water & Telephone Company has increased 4,000%, from 227 to 9,301!

GROWING FAST WITH FAST GROWING CALIFORNI

California Water & Telephone Company

plant were included in the plans now in progress. In- in this schedule were the fol- items:

office equipment .....760 lines
channels VF telegraph carrier)
round conduit .....83,756 duct ft.
round cable .....2.9 miles
miles of wire in cable)
able .....8.7 miles
miles of wire in cable)
es .....27.2 miles

total program amounts to 00.

Marcos Telephone Company Marcos, Texas). This com- construction and expansion n during 1957 will reflect growth in this exchange. It d 200 lines of dial equipment sent 1400 line exchange and rminals to its 1700 terminals. xtensions will mostly be lateral ons from trunk cables into g suburban areas. The com- lans to put more emphasis on onstruction and build perhaps s of rural construction. Total additions will be about $60,- 1957. The San Marcos Tele- Company has some 3200 sta- t this time and operates the ge at San Marcos, Texas.

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Southeastern Telephone Company (Tallahassee, Fla.). Total 1957 program for this Florida independent company is estimated at $3,000,000 for new construction designed to accommodate 5,000 additional subscribers. This includes two microwave systems and dial conversion of remaining manual exchange, central office equipment, additions and cable, etc.

The Southwestern States Telephone Company (San Francisco, Cal.). For the year 1957 The Southwestern States Telephone Company plans a construction budget of approximately $6,000,000. Officers estimate that 7,000 new telephones will be installed, resulting in over 122,000 company-owned stations at the year end.

Southwestern States plans to convert seven exchanges serving 13,000 telephone stations to dial operation. Early in the year a new company headquarters building will be completed in Brownwood, Texas, at an estimated cost of $260,000.

By the end of the coming year The Southwestern States Telephone Company plans to have a net plant investment of $33,000,000 in telephone facilities.

Springfield Local Telephone Company (Springfield, Vt.). This company has been serving the Springfield, Vermont, area for sometime. During the past 5 years, it has added an annual plant investment of $65,- 000 per year and expects to make similar additional investments during the coming year. During the last ten years, the company's plant investment has increased from $159,000 to $840,- 000 which is very nearly six times the plant investment of ten years ago.

Tidewater Telephone Company (Warsaw, Va.). This independent telephone company in eastern Virginia plans to spend a total of $1,- 136,500 for the year 1957. The principal emphasis will be on rural and urban extensions — $500,000. The balance will be spent on inside and outside plant as follows:

Central office and toll and trunk additions	$219,000
Routine authorizations	200,000
Station development	150,000
Hi-Way projects and miscellaneous equipment	67,500

It is estimated that Tidewater Telephone Company will add from 12 to 15 hundred additional subscribers during the coming year.

(*Continued on page* 52)

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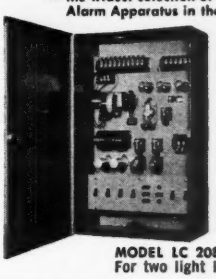
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United Utilities, Incorporated (Kansas City, Mo.). Details of the 1957 budget for United Utilities, Incorporated, with respect to telephone construction plans were not completed as of this printing, but the following is a statement based on present outlook. Expenditures for telephone alone are estimated at $16,000,000, calculated to provide for 22,000 additional customers. This compares with $14,680,259 being spent in the current year (1956) to provide for 21,300 customers and $12,374,697 spent in 1955 to provide for 19,285 new customers. This company also operates electric, gas, water and propane facilities. The total budget for the combined utility operations for 1957, including telephone, is roughly estimated at $18,500,000, compared with $16,920,531 for the current year and $15,248,404 for the year 1955.

West Coast Telephone Company (San Francisco, Cal.). For the year 1957, West Coast Telephone Company plans a construction budget of approximately $11,000,000. Officials estimate that the net station gain will exceed 11,000 telephones.

West Coast plans to convert five exchanges serving 15,500 telephone stations to dial operation, which will result in 85% of the company's stations being dial. Plans also contemplate the installation of direct distance dialing equipment in some of the company's exchanges.

By the end of the coming year West Coast Telephone Company plans to have a net plant investment of $49,000,000 in telephone facilities and over 152,000 telephones in service.

Western Carolina Telephone Company (Weaverville, N. C.). This company is engaged in a construction program for the conversion of the balance of its properties to automatic dial operation, to be completed late in 1958 at a cost of approximately $2,000,000. Upon completion of this program the entire system of 19 exchanges will all be automatic dial operation with full intertoll or 2-5 numbering, and all plants ready for nation-wide direct distance dialing. Toll centers will be at Marion, Sylva and Franklin, North Carolina. This construction pr is the last portion of the conv to dial program begun in 1949 f entire system, and at presen company is approximately 75 pe dial operation. The company service approximately 11,000 tions and growth during the two-year period is indicated a proximately 1500 additional sta

Western Light & Tele Company, Inc. (Great Bend, sas). The telephone holdings company are scattered through four-state area of Kansas, homa, Missouri and Iowa. Its struction program for 1957 i pected to follow the same g plan as used in previous years, a number of grounded telephone are being metallicized as rapid possible, and at the same time, of the company's exchanges being prepared for dial operatio the past few years, this compan converted one or two telephon changes to dial each year and pects to increase such conversio soon as its metallicizing progr completed.

Growing with the Pacific Northwest

This magnificent section of our country is growing vigorously. The population is increasing steadily, residential areas are expanding, and commerce and industry developing substantially. To meet the resulting heavy demand for local and long distance telephone service the West Coast Telephone Company, serving various cities and towns in California, Oregon and Washington, completed in the year 1955 the most comprehensive development program in its history and has undertaken an even broader schedule of new construction for 1956 and 1957.

West Coast
TELEPHONE COMPANY

West Coast Telephone Company

EVERETT **WASHINGTON**

Western Utilities Acquires Thornhill Publishing Co.

STE H. LOVELAND, President We tern Utilities Corporation, ancisco, recently announced the ition by his company of the hill Publishing Company, of t, Washington.

publishing company has been cing telephone directories hou the west for many years. e B. Thornhill, owner of the ill ontinue to be in charge of ry operations for the new or- tion. He has had 16 years' ence in telephone directory hing plus several years' experi- n advertising, printing, photo- ving and allied businesses.

Loveland stated that the pub- company will be operated in ture as a division of Western es Corporation.

headquarters for the firm been established in San Fran- with branch offices at Everett, ington, and Brownwood, Texas. er Western Utilities control hill will begin operations by hing directories for 127 com- munities in nine Western states, including Washington, Oregon, Idaho, California, Utah, Texas, Arkansas, Louisiana and Oklahoma. Aggregate annual advertising billing will be more than one million dollars.

The company offers complete directory services, including sale of advertising, production, printing, paging and photoengraving.

Automatic Electric Increases New Factory Size

WITH construction of Automatic Electric Company's huge new headquarters plant in Northlake, in suburban Chicago, Illinois, progressing rapidly, company officials have disclosed that the size of the manufacturing and research center is being increased by approximately 200,000 sq. ft., bringing the over all floor area to more than 1,500,000 sq. ft.

Leslie H. Warner, Automatic Electric president, pointed out that the increase was required "to provide productive capacity in line with revised estimates of the expected demand for our dial telephone and other communications equipment, automation devices and other electronic products."

Construction of the new plant got underway at ground-breaking ceremonies on April 16, 1956, attended by leaders from the telephone industry and Chicago business and financial circles.

More than 7200 persons now working in 16 separate buildings in the company's existing Chicago plant will be employed in the new building, where all manufacturing operations will be on one floor.

Research and development laboratories and the general, administrative, engineering and sales offices will be housed in a two-story structure adjoining the factory building.

The Austin Company of Cleveland is the engineer and builder of the new factory. Completion is scheduled for the summer of 1957.

Transoceanic Telephone Cable Partners

BELL System partners of A.T.&T.'s Long Lines Department in providing the world's first transoceanic telephone cable were Bell Telephone Lab-

WESTERN CAROLINA TELEPHONE COMPANY is one of the larger regional operating telephone companies in North Carolina, operating 19 exchanges with approximately 12,000 stations. The company serves all or a portion of 11 counties in western and southwestern North Carolina which are: McDowell, Yancy, Mitchell, Madison, Buncombe, Jackson, Swain, Graham, Cherokee, Clay and Macon, North Carolina and Rayburn County, Georgia.

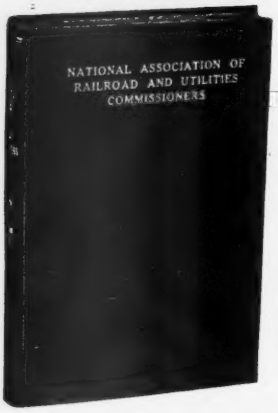
NORTH CAROLINA TELEPHONE COMPANY operates 9 exchanges in the south central portion of North Carolina, having in service approximately 5200 stations, and serves all or a portion of Eastern Mecklenburg County, Union County, Anson County, and Stanley County.

The territories of both companies are in a rather rapid growth period due to the diversified type of industry and agriculture in their respective areas. Inquiries are invited from institutions and industries interested in plant sites in this section of the South, as well as individuals interested in relocating on account of retirement.

WESTERN CAROLINA TELEPHONE COMPANY
NORTH CAROLINA TELEPHONE COMPANY

Inquiries should be addressed to the President's Office, Box 38, Matthews, North Carolina.

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tists of the Laboratories were
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Among the components ac-
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Hill, N. J., were the 306 elec-
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f dust from getting inside any
the repeaters. Humidity and
ature were rigidly controlled.
The entire building had both conventional and electrostatic air filtering systems. Personnel wore lint-free uniforms at all times. Rooms where critical work was done was slightly pressurized. Consequently, when doors were opened, escaping air prevented dust-laden air from entering the rooms.

Difference Between Telephone And Telegraph Cables

TELEGRAPH cables have been operating under the North Atlantic Ocean ever since 1858. Today there are twenty of them beneath that part of the sea—and many more in other sections of the world. The new transatlantic telephone cable has plenty of company—but its characteristics are much different from the rest.

The main difference is in its capacity to carry information. The transmission of dots and dashes, or teletypewriter signals, requires a bandwidth of about 100 cycles or vibrations per second. By contrast, the telephone cable has a bandwidth of 144,000 cycles per second. In other words, it can transmit 1440 times as much information.

This bandwidth permits 36 simultaneous conversations to be carried between hemispheres—and the voice is rendered with all of its personal shadings and characteristics: Standard television transmission is not possible, however, since it would require a bandwidth 20 times greater than that of the cable.

Transoceanic Cable Route

THE route of the twin telephone cables on the floor of the Atlantic Ocean was carefully plotted in advance—then re-checked many times. Often the depth of the sea was measured by the cableship Monarch as the cable itself was being laid. This was done with a device called a fathometer, which bounced sound waves off the sea bottom. Precise timing of the bounce determined the depth of the ocean.

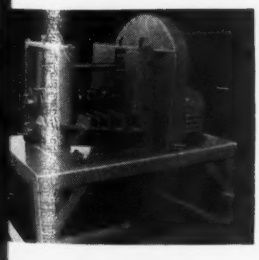
Care was taken to avoid laying the cable in ocean holes, where the bottom drops off suddenly, as the cable might have kinked. The route from Clarenville, Newfoundland, to Oban, Scotland was selected to avoid telegraph cables. All of them lie to the south.

The two cables were laid approximately twenty miles apart—and the slightly different ocean bed produced a variation in their lengths. The Oban-Clarenville cable is 2,250 miles long, and the Clarenville-Oban cable is somewhat shorter. All laying was under supervision of A. T. & T.'s Long Lines Department.

Newfoundland Cable Section

PART of the transatlantic telephone cable is not in the ocean at all—but instead, is buried across a 64-mile neck of land in Newfoundland. "Land" is hardly the proper term, however, for the route of the cable section which runs from Clarenville to Terrenceville. Much of it consists of "muskeg," which is a type of bog containing moss lying over water. It appears to be solid, but often men sink to their hips when trying to stand on this uncertain surface.

Cable-laying through muskeg, as well as innumerable lakes, ponds, rivers, inlets and bays of Newfoundland, was no easy task. Special trench-making equipment was used, and cable reels were inched along with the help of wooden poles. The cable itself was of submarine instead of land design—the same as the underwater section from Newfoundland to Nova Scotia.



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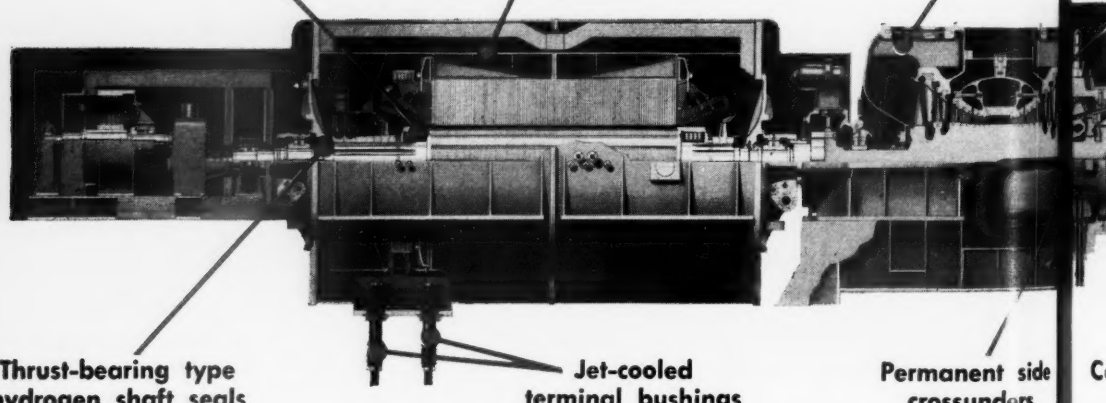
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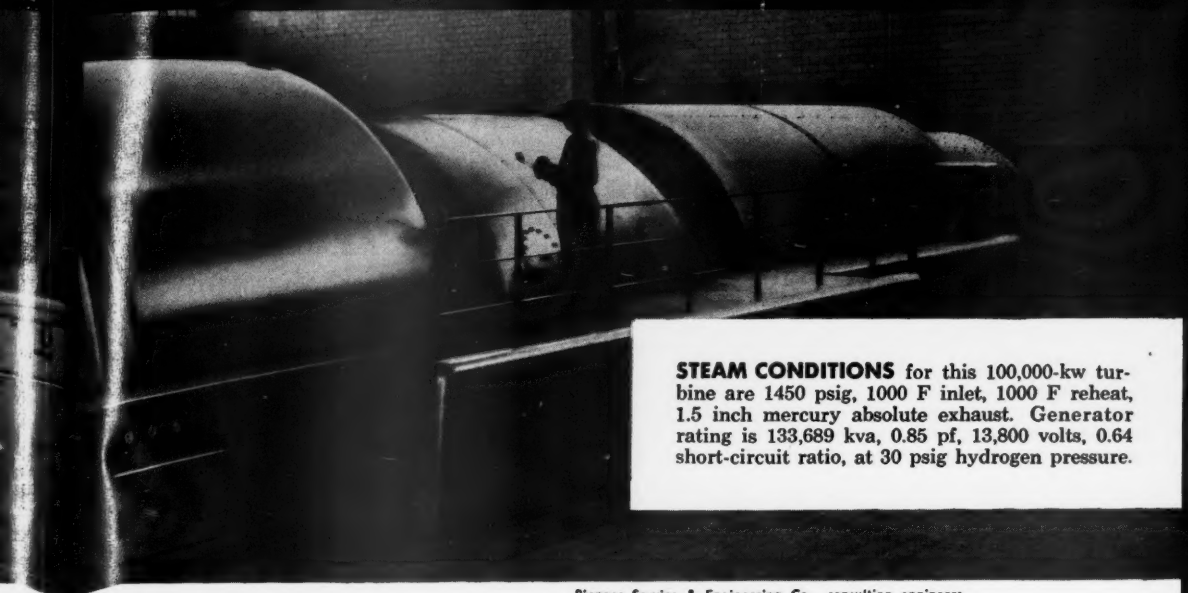


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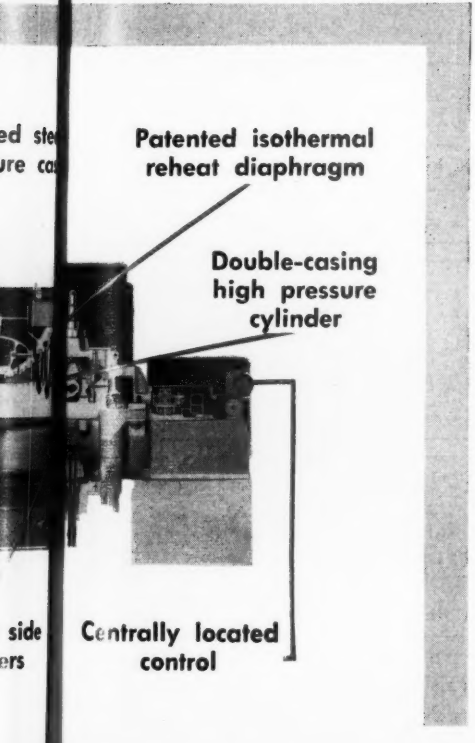
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STEAM CONDITIONS for this 100,000-kw turbine are 1450 psig, 1000 F inlet, 1000 F reheat, 1.5 inch mercury absolute exhaust. Generator rating is 133,689 kva, 0.85 pf, 13,800 volts, 0.64 short-circuit ratio, at 30 psig hydrogen pressure.

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A

Abrams Aerial Survey Corporation 61
*Allen & Company .....
Allis-Chalmers Manufacturing Company 56-57
American Appraisal Company, The 15
American Creosoting Corporation 16
American Telephone & Telegraph Company 13
Analysts Journal, The 32
Anderson Electric Corporation 38

B

Babcock & Wilcox Company, The 4-5
Berry, L. M., & Co. 17
Black & Veatch, Consulting Engineers 58
*Blyth & Company, Inc. .....

C

California Water & Telephone Company 50
Carolina Telephone and Telegraph Company 48
Carter, Earl L., Consulting Engineer 61
Central Telephone Company 7
Chase Manhatten Bank, The 19
Cleveland Trencher Company, The 36
Coates Field Service 61
Columbia Gas System, The 20
Commercial Cord & Supply Co., Inc. 15
Commonwealth Associates, Inc. 43
Commonwealth Services, Inc. 43
Consolidated Gas and Service Company 61

D

Day & Zimmermann, Inc., Engineers 58
Delta-Star Electric Division, H. K. Porter Co., Inc. 35
*Divco Corporation .....
Dodge Division of Chrysler Corp. 21
Drake & Townsend, Inc. 58
*Dresser Industries, Inc. .....

E

Eastern Indiana Telephone Co., The 40
*Ebasco Services Incorporated .....
*Electro-Motive Division, General Motors .....

F

*First Boston Corporation, The .....
Florida Telephone Corporation 49
Ford, Bacon & Davis, Inc., Engineers 58

G

Gannett Fleming Corddry and Carpenter, Inc. 61
General Electric Company .....Outside Back Cover
General Telephone System .....Inside Front Cover
Gibbs & Hill, Inc., Consulting Engineers 58
Gilbert Associates, Inc., Engineers 58
Gilman, W. C., & Company, Engineers 58
*Glore, Forgan & Company .....
Greenberg Engineering Company 55

H

Haberly, Francis S., Consulting Engineers 61
*Halsey, Stuart & Company, Inc. .....
*Harriman, Ripley & Company .....
Hirsch, Gustav, Organization, Inc. 59
Hoosier Engineering Company 59
Hughey & Phillips, Inc. 51

I

International Business Machines Corporation 28
*International Harvester Company, Inc. .....
Irving Trust Company 24
Independent Telephone Companies of America 31, 44
Inter-County Telephone & Telegraph Company 48

J

Jackson & Moreland, Inc., Engineers 61
Jensen, Bowen & Farrell, Engineers 59

K

Kander, Allen, & Company .....
Kellogg, M. W., Company, The .....
Kerite Company, The .....
Kidder, Peabody & Co. .....Inside Back Cover
*Kuhn Loeb & Company .....
Kuljian Corporation, The .....

L

*Langley, W. C., & Company .....
Lee Telephone Company .....
Leffler, William S., Engineers Associated .....
*Lehman Brothers .....
Lexington Telephone Company .....
Lincoln Telephone and Telegraph Company, The .....
*Loeb (Carl M.) Rhodes & Co. .....
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M

Main, Charles T., Inc., Engineers .....
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N

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Newport News Ship Building & Dry Dock Company.....
North Carolina Telephone Company .....
North State Telephone Company .....

P

*Pacific Pumps, Inc. .....
Pioneer Service & Engineering Company 22, 60

R

Recording & Statistical Corporation .....
Remington Rand Div. of Sperry Rand Corp. .....
Robertson, H. H., Company .....

S

Sanderson & Porter, Engineers .....
Sargent & Lundy, Engineers .....
Schulman A. S., Electric Co., Engineers .....
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Sverdrup & Parcel, Inc., Engineers .....

T

*Texas Eastern Transmission Corporation .....
Thornhill Publishing Company, The .....

U

*Underwood Corporation .....
*Union Securities Corporation .....
United States Independent Telephone Association 31, 44
United Utilities Incorporated .....

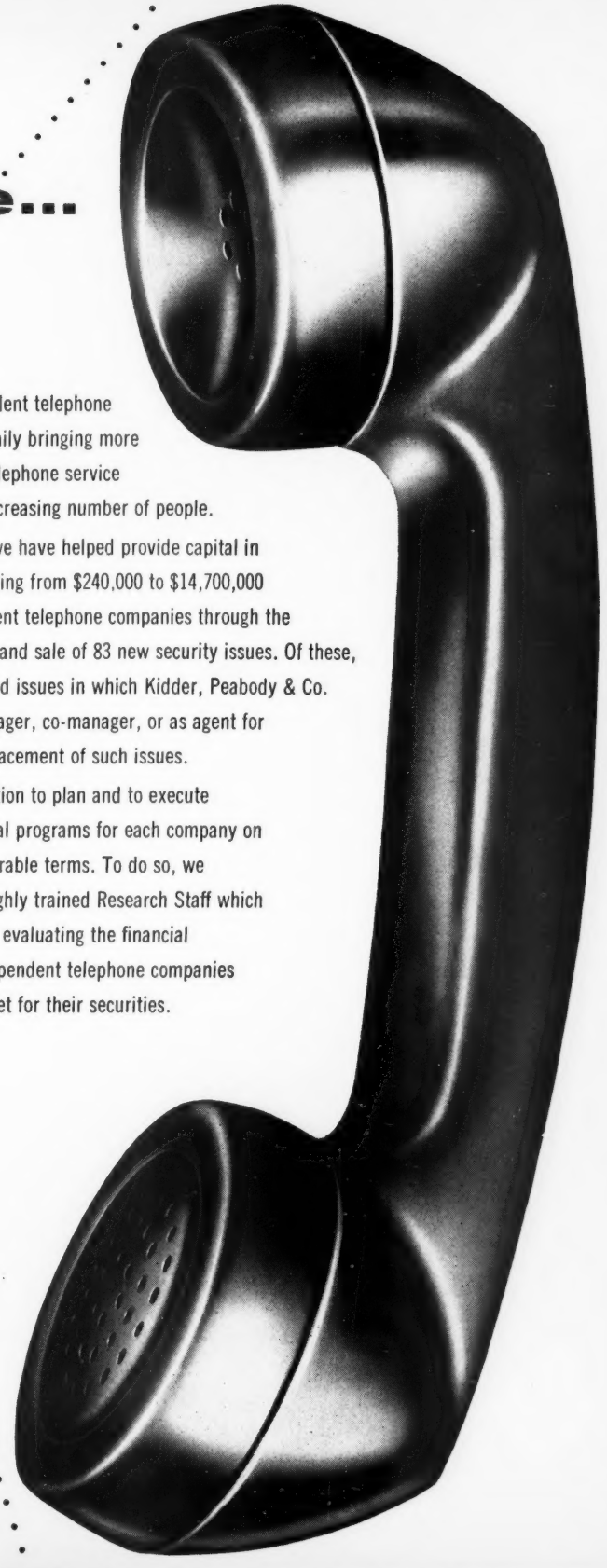
W

Western Carolina Telephone Company .....
*Western Precipitation Corporation .....
West Coast Telephone Company .....
Westinghouse Electric Corporation 26-27
White, J. G., Engineering Corp., The .....
Whitman, Requardt and Associates .....
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Professional Directory 58-61

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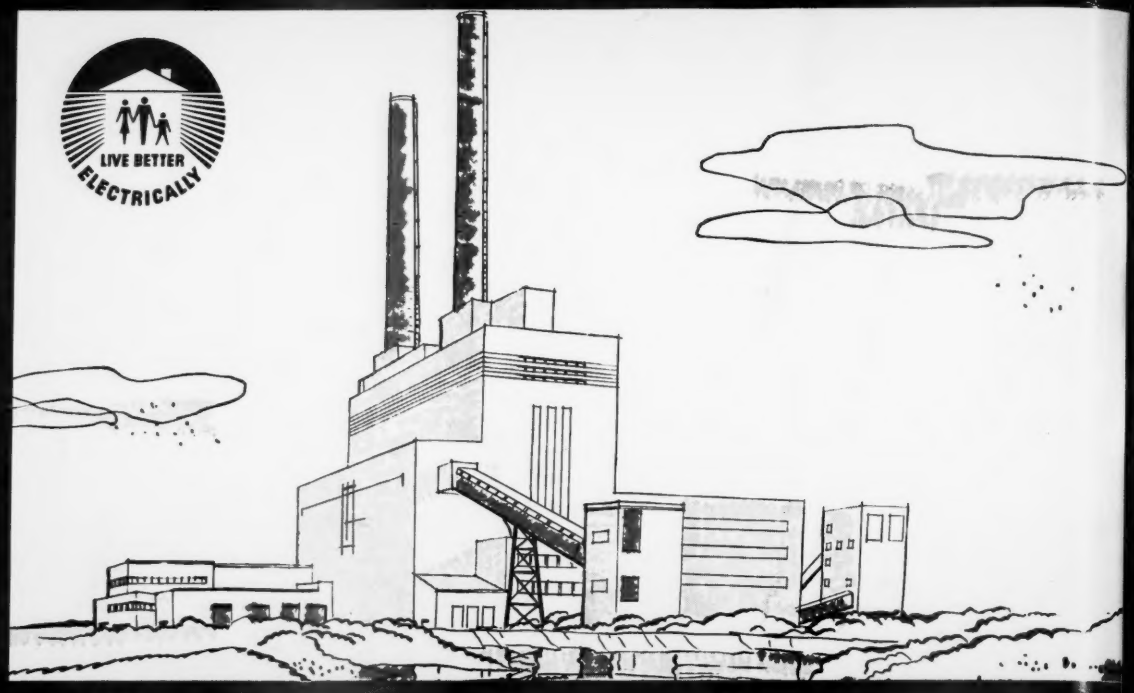
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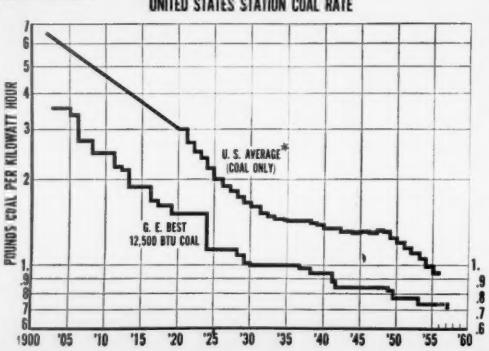
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